

UNITED STATES DISTRICT COURT  
EASTERN DISTRICT OF TEXAS  
MARSHALL DIVISION

NETLIST, INC.

Plaintiff,

v.

SAMSUNG ELECTRONICS CO., LTD.,  
SAMSUNG ELECTRONICS AMERICA, INC.  
and SAMSUNG SEMICONDUCTOR, INC.,

Defendants.

Civil Case No. 2:21cv463-JRG

**JURY TRIAL DEMANDED**

**SAMSUNG'S PROPOSED FINDINGS OF FACT AND CONCLUSIONS OF LAW**

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## **I. INTRODUCTION**

Pursuant to Federal Rule of Civil Procedure 52 and the Court's May 30, 2023 instruction (Dkt. 535 at 3), Defendants Samsung Electronics Co., Ltd., Samsung Electronics America, Inc., and Samsung Semiconductor, Inc. (collectively, "Samsung") submit these proposed Findings of Fact and Conclusions of Law for their affirmative defenses of standards estoppel, prosecution laches, and unclean hands. As set forth below, U.S. Patent Nos. 11,016,918 ("the '918 patent") and 11,232,054 ("the '054 patent") are unenforceable due to standards estoppel, prosecution laches, and unclean hands, and U.S. Patent No. 10,949,339 ("the '339 patent") is unenforceable due to unclean hands. Samsung respectfully asks the Court to exercise its discretion in finding that Plaintiff Netlist Inc. ("Netlist") is barred from recovery in this action as to the asserted '918, '054, and '339 patents.<sup>1</sup>

## **II. PROPOSED FINDINGS OF FACT**

### **A. Procedural History**

1. This is an action for patent infringement. On December 20, 2021, Netlist sued Samsung asserting the '918 and '339 patents and U.S. Patent No. 10,860,506 ("the '506 patent"). Dkt. 1. On May 3, 2022, Netlist filed an Amended Complaint, adding infringement allegations based on U.S. Patent Nos. 11,232,054 ("the '054 patent"), 8,787,060 ("the '060 patent"), and 9,318,160 ("the '160 patent"). Netlist accused the Samsung's DDR4 LRDIMM memory products of infringing the '339 and '506 patents, DDR5 memory products of infringing the '918 and '054 patents, and HBM memory products of infringing the '160 and '060 patents. Netlist

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<sup>1</sup> For purposes of these proposed findings of fact and conclusions of law, Samsung assumes consistently with the jury verdict that Samsung's accused products infringed the patents. Samsung's recital of evidence consistent with the jury verdict in these proposed Findings of Fact and Conclusions of Law does not prejudice its right to challenge the verdict for insufficiency of the evidence as a matter of law.



did not present any assertions relating to the '506 patent at the jury trial. Samsung did not raise any equitable defenses relating to the '060 and '160 patents. Therefore, the patents at issue for Samsung's equitable defenses are the '339, '918, and '054 patents.

**B. Standards Estoppel**

**1. Netlist Filed the '918 and '054 Patents in 2020 and 2021**

2. On December 30, 2020, Netlist filed U.S. Patent Application No. 17/138,766, which issued on May 25, 2021 as the asserted '918 patent. JTX0003 (U.S. Patent No. 11,016,918) at 1.

3. On May 24, 2021, Netlist filed U.S. Patent Application No. 17/328,019, which issued on January 25, 2022 as the asserted '054 patent. JTX0004 (U.S. Patent No. 11,232,054) at 1. The '054 patent is a continuation of the '918 patent. *Id.*

4. The asserted '918 and '054 patents claim priority through a series of applications to an original non-provisional application, U.S. Patent Application No. 12/131,873, which was filed on June 2, 2008. *Id.* at 2.

**2. Netlist Participated in JEDEC Where the DDR5 Standard Was Developed**

5. The Joint Electron Device Engineering Council (JEDEC) is the global standards setting organization (SSO) responsible for developing the industry standards for dynamic random access memory (DRAM). *See* 05/30/2023 Bench Trial Tr. at 7:19-24 (Halbert). Included among those standards are the DDR4, DDR5, and HBM DRAM standards at issue in this case. *Id.* at 7:25-8:1 (Halbert). JEDEC is organized into committees that work on various types of memory products, including the JC-40 committee responsible for developing logic devices used on DRAM dual in-line memory modules (DIMMs), the JC-42 committee

[REDACTED]

responsible for developing DRAMs, and the JC-45 committee responsible for developing DIMMs. *Id.* at 17:6-10 (Halbert).

6. Netlist is a participating member in JEDEC. *See* 05/30/2023 Bench Trial Tr. at 7:19-24 (Halbert), 62:15-63:1 (Milton); *see generally id.* at 24:6-31:19 (Martinez). Netlist first joined JEDEC in 2001. DTX-10 at 96-97. Netlist has been a participating member of JEDEC in various capacities since that time. *See* 05/30/2023 Bench Trial Tr. at 1-15, 53-58, 62-97. Notably, Netlist has been a participating member of the JC-40, JC-42, and JC-45 committees for the majority of its time as a JEDEC member.

7. Over time, numerous individuals have represented and submitted materials to JEDEC on behalf of Netlist. Those individuals have included, for example, [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

8. Netlist was restricted from participating in JEDEC during two periods of time. The first time occurred in 2011 when Netlist sought to refuse to license certain of its patents on RAND licensing terms to certain JEDEC committees. 05/30/2023 Bench Trial Tr. at 15:25-17:5 (Halbert). The second was from February 2015 through August 2018, when Netlist again refused to offer certain of its patents on RAND licensing terms. DTX-10 at 16; 05/30/2023 Bench Trial Tr. at 27:11-28:21 (Martinez).

9. Netlist has been a participating member in JEDEC, including the JC-40, JC-42, and JC-45 committees, since returning to JEDEC in August 2018. *See* DTX-10 at 1-16.

10. Netlist was a participating member of JEDEC at the time of filing and prosecution of the asserted '918 and '054 patents in this case. *Id.*; 05/30/2023 Bench Trial Tr. at 82:24-83:6 (McAlexander).

**3. JEDEC Requires the Disclosure Patents Believed To Be Potentially Essential**

11. The JEDEC Manual of Organization and Procedure, JM21, contains a Patent Policy setting forth member companies' duties to disclose Potentially Essential Patents as defined by JEDEC, and to offer Essential Patents as defined in the JM21 on reasonable and non-discriminatory (RAND) licensing terms. DTX-02 (JM21S); DTX-08 (JM21T); *see* 05/30/2023 Bench Trial Tr. at 9:17-10:5 (Halbert), 10:19-25 (Halbert), 24:6-24 (Martinez), 82:19-23 (McAlexander), 142:13-143:5 (Gillingham).

12. JEDEC periodically issues revisions of the JM21 Manual of Organization and Procedure, which contain largely editorial changes to the JEDEC Patent Policy. DTX-02; DTX-08; 05/30/2023 Bench Trial Tr. at 9:6-16 (Halbert).

13. Section 8.2.3 of the JM21 establishes a duty of disclosure incumbent upon JEDEC member companies.

**8.2.3 Disclosure of Potentially Essential Patents**

At each committee meeting, the chairperson should call to the attention of all those present the requirements contained in the JEDEC Legal Guides and the obligation of all Representatives to inform the committee of any personal knowledge they have of any Potentially Essential Patents that are owned or controlled by that Committee Member and to call for the Disclosure of Potentially Essential Patents by Representatives. Annex A provides information to be displayed at the beginning of the committee meeting to satisfy the requirement. Additionally, all Representatives should be asked to read the statement attached to each JEDEC sign-in/attendance roster; *see* Annex A for patent policy application guidelines.

All Committee Members must Disclose Potentially Essential Patents, known to their Representative(s) to be Potentially Essential

Patents that are owned or controlled by that Committee Member to the personal knowledge of the Representatives. However, neither Committee Members nor Representatives shall have any obligation to conduct a search for Potentially Essential Patents.

Disclosure of Potentially Essential Patents by a Representative or the Committee Member being represented shall be made as early as reasonably possible. The Disclosure of Potentially Essential Patents shall be in accordance with the definition of Disclosure of Potentially Essential Patents, see 8.2.1. Initial disclosure by a Committee Member or Representative may be made in a meeting of the committee or task group. The Representative is responsible for ensuring that such disclosure is properly recorded in the meeting minutes.

The Representative or Committee Member shall document all known Potentially Essential Patents in either: a) License Assurance/Disclosure Forms, see Annex A.3, or b) Notice of Refusal to offer Licenses on RAND Terms forms, see Annex A.4. Such disclosures or notices of known Potentially Essential Patents shall be delivered to the JEDEC Legal Department within thirty (30) calendar days of Approval by the Committee in order to be effective.

DTX-08 at 33-34; 05/30/2023 Bench Trial Tr. at 10:19-11:4 (Halbert), 11:24-13:5 (Halbert), 142:13-143:21 (Gillingham).

14. The JM21 defines a Potentially Essential Patent as “[a] Patent that is reasonably believed by a subject person to contain one or more Essential Patent Claims.” DTX-08 at 31. The JM21 defines Patents to include “[a]ll classes or types of patents other than design patents (including, without limitation, originals, divisions, continuations, continuations-in-part, extensions or reissues), and applications for these classes or types of patents throughout the world.” *Id.* Thus, the duty to disclose extends to not only issued patents, but also pending patent applications. *Id.* Essential Patent Claims are “[t]hose Patent claims the use of which would necessarily be infringed by the use, sale, offer for sale or other disposition of a portion of a product in order to be compliant with the required portions of a final approved JEDEC Standard.” *Id.*

15. The duty to disclose Potentially Essential Patents extends to those patents of which a JEDEC member company's representatives have knowledge. During the bench trial held on May 30, 2023, Netlist's JEDEC expert Mr. Peter Gillingham testified as follows, consistent with the testimony of Samsung's JEDEC expert Mr. John Halbert.

Q. You agree that the JEDEC patent policy contains a patent disclosure provision. Correct?

A. Yes, it does.

Q. And you agree that under the JEDEC patent policy that if a member knows of a patent that is relevant to a given standard, that it must disclose that patent to JEDEC. Correct?

A. If a member is aware of a potential essential patent, which is defined as a patent that has claims that would read on the standard, yes, the representative attending the committee meeting has the obligation to disclose.

Q. It's mandatory. Correct?

A. Yes. The representative attending the meeting, if that representative has personal knowledge of the patent, has the obligation to disclose.

Q. It's not optional; it's mandatory. Correct?

A. The obligation to disclose, yes, meeting all those conditions that I laid out, it's mandatory.

[. . .]

Q. And you agree that a company's representative is required to disclose potentially essential patents to JEDEC. Correct?

A. Yes.

Q. So if they believe it's -- the representative believes it's potentially essential, the requirement kicks in for disclosure. Isn't that right?

A. Yes, potentially essential patents of which they are personally aware.

Q. The requirement kicks in. Correct?

[REDACTED]

A. And the requirement kicks in.

Q. And that disclosure, as you said earlier, is by the patent claims specifically. Isn't that right?

A. Yes, it is.

05/30/2023 Bench Trial Tr. at 142:13-143:24 (Gillingham); *see also id.* at 10:19-11:2 (Halbert).

16. While JEDEC members are required to disclose Potentially Essential Patents of which they are aware for each applicable standard, members are under no obligation to conduct a search for Potentially Essential Patents, and the disclosure of one patent for a particular standard is deemed to include all patents claiming priority of a single filing. DTX-08 at 33; 05/30/2023 Bench Trial Tr. at 12:7-22, 13:23-14:1 (Halbert) (“Q. So, Mr. Halbert, if a company makes a disclosure for one standard, does that then count for later standards? A. No.”).

17. Moreover, once a JEDEC member has knowledge that it owns a Potentially Essential Patent for a particular standard, the JEDEC member is required to disclose that patent to JEDEC as early as reasonably possible. DTX-08 at 33.

18. The JEDEC Patent Policy also specifies the necessary information to include in patent disclosures, including the patent owner, assignee, address and intellectual property rights contact person, name or title of the patent, the patent number, the country or countries of issuance, and “the Standard(s) on which the submitter of the disclosure believes an Essential Patent Claim may read.” *Id.* at 31. JEDEC provides a standard License Assurance/Disclosure Form for making disclosures to JEDEC. *Id.* at 34, 44-46; 05/30/2023 Bench Trial Tr. at 12:7-22 (Halbert), 24:23-25:9 (Martinez).

19. The JEDEC Patent Policy does not state that member companies are relieved from their duty of disclosure if they have previously disclosed a patent as relevant to a different

JEDEC standard. *See* DTX-08 at 30-37, 43-49. Rather, the JM21 is explicit that JEDEC members' obligations continue even after a patent's initial disclosure:

By its terms, the JEDEC patent policy applies with equal force to situations involving:

- a) the discovery of patents that may be required for use of a standard subsequent to its adoption, and
- b) the initial issuance of a patent after the adoption of a standard.

Once disclosure is made, the holder is obligated to provide the same assurances to JEDEC as are required in situations where patents exist or are known prior to approval of a proposed standard. Thus, if notice is given of a patent that may be required for use of an already approved JEDEC standard, a standards developer may wish to make it clear to other standards-making participants that the JEDEC procedures require the patent holder to provide the assurances contained in the patent policy or suffer the withdrawal of JEDEC's approval of the document as a JEDEC standard.

*Id.* at 49.

20. Thus, the JEDEC Patent Policy requires disclosure of patents that were discovered by a member to be essential after a standard was adopted. *Id.* at 49 ("By its terms, the JEDEC patent policy applies with equal force to situations involving . . . the discovery of patents that may be required for use of a standard *subsequent to its adoption.*" (emphasis added)).

21. Further, the fact that a Potentially Essential Patent was applied for or issued after an industry standard was adopted by the SSO does not relieve a member of its duty to disclose the patent to JEDEC. *Id.*

22. Section 8.2.4 of the JM21 further establishes an obligation to offer Essential Patent Claims on RAND licensing terms.

#### **8.2.4 RAND Patent Licensing Commitment**

Subject to the terms and conditions of section 8.2.4, each Committee Member, as a condition of Participation, agrees to offer to license on RAND terms, to all Potential Licensees, such Committee

Member's Essential Patent Claims for the use, sale, offer for sale or other disposition of a portion of a product in order to be compliant with the required portions of a final approved JEDEC Standard issued during the period of membership in that committee. The licensing commitment does not apply to Essential Patents of a Committee Member where notice of a Refusal to License has been given by the Committee Member in accordance with 8.2.3.1.

This commitment applies to any Standard that was pending in the committee or task group while the Committee Member Participated in that committee or task group. If a Committee Member terminates its committee membership, the commitment does not apply with respect to any new proposal or Standard introduced in the committee or task group after the Committee Member provided notice to the JEDEC Legal Department terminating its committee membership. If and as necessary, questions whether or not a particular proposal is a new Standard or merely a continuation of a prior Standard will be addressed in the first instance by the JEDEC Legal Department in accordance with 8.2.10.

Certain exceptions apply to the licensing requirement. A Committee Member will not be required to license or continue to license its Essential Patent Claims to a Potential Licensee for a particular Standard if: (i) such Potential Licensee does not agree to grant a license to all other Potential Licensees under such Potential Licensee's Essential Patent Claims of that Standard on RAND terms and conditions for the approved Standard and/or (ii) such Potential Licensee has commenced or has threatened to commence patent litigation targeting such Committee Member's products that are meant to comply with that Standard.

*Id.* at 34; 05/30/2023 Bench Trial Tr. at 14:47-11 (Halbert); 149:19-21 (Gillingham).

23. The JEDEC Patent Policy further indicates that, if a company is unwilling to offer an Essential Patent on RAND terms, it must notify JEDEC in the form of a Notice of Refusal To Offer Licenses on RAND Terms, and must withdraw from the JEDEC committees working on the relevant standards.

#### **8.2.3.1 Disclosure of unwillingness to license work of a committee**

If a Committee Member knows that it would not be willing to offer to license Essential Patent Claims arising from the Contributions of another Committee Member on RAND terms to all Potential



Licensees consistent with 8.2.4, the Committee Member shall notify the committee chair in writing as early as reasonably possible but no later than thirty (30) calendar days after Approval by the Committee in the form of a Notice of Refusal to offer Licenses on RAND Terms, see Annex A.4.

*Id.* at 34; 05/30/2023 Bench Trial Tr. at 14:7-15:5 (Halbert).

25. Once a company has indicated an unwillingness to license on RAND terms and is removed from JEDEC as a result, the company is unable to participate in JEDEC's standard setting process for the committees from which it has been removed. *See* DTX-08 at 34; DTX-10 at 61 (indicating removal from [REDACTED])

[REDACTED]

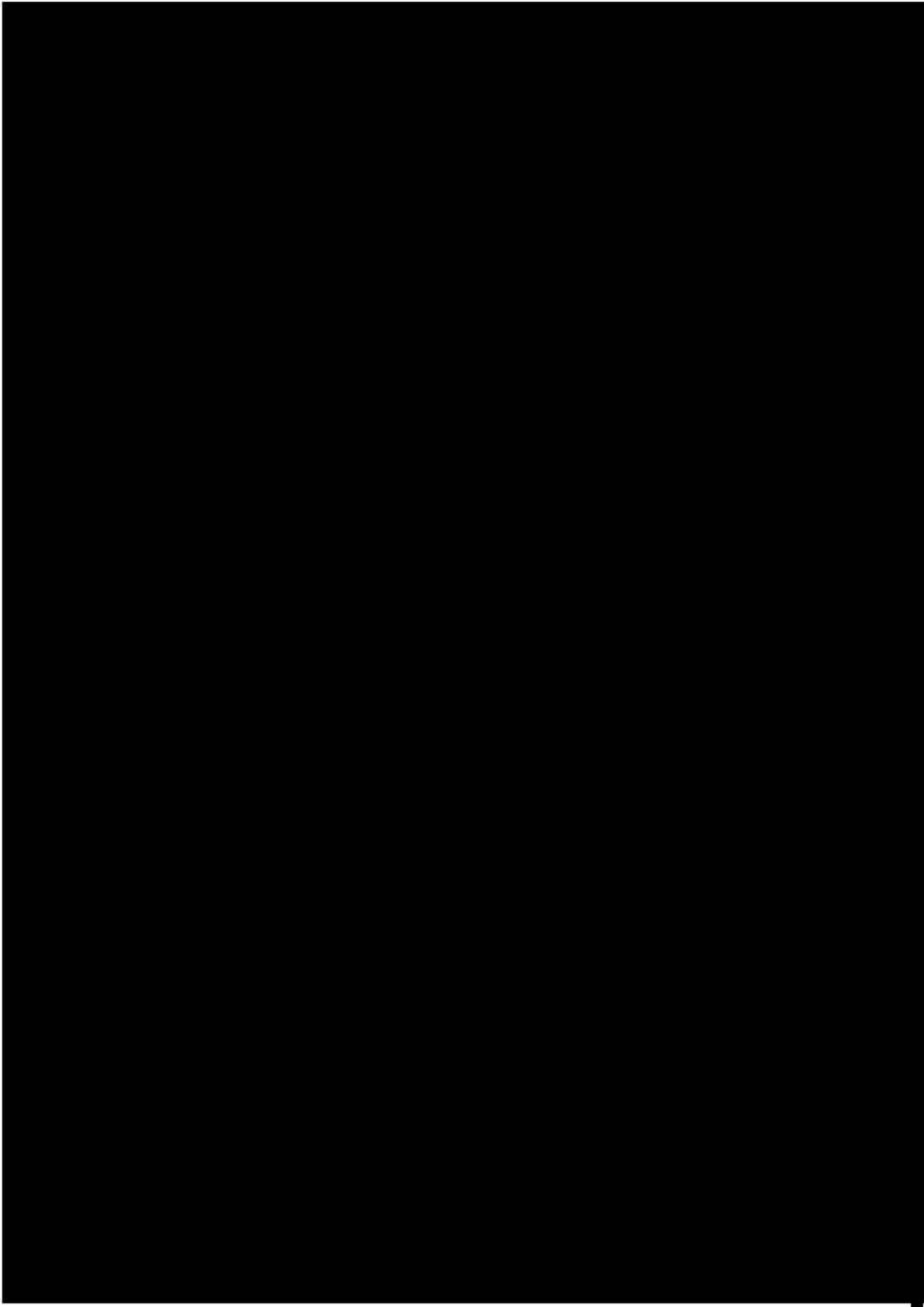
[REDACTED] 05/30/2023 Bench  
Trial Tr. at 14:12-21 (Halbert), 16:18-17:2 (Halbert), 28:3-17 (Martinez).

**4. Netlist Has Never Disclosed the '918 or '054 Patents to JEDEC**

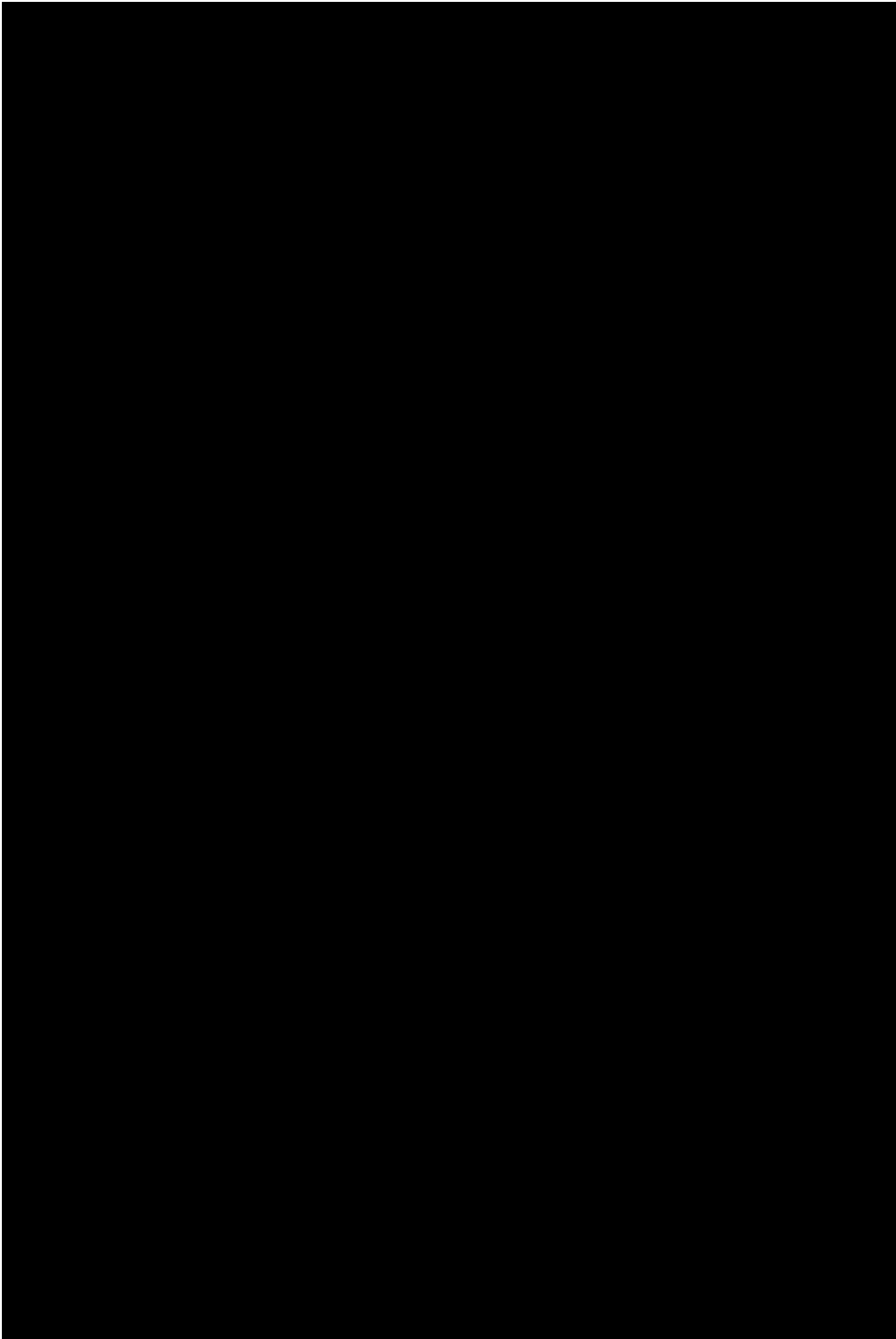
26. Netlist never disclosed the '918 and '054 patents to JEDEC. 05/30/2023 Bench Trial Tr. at 31:7-12 (Martinez), 64:4-7 (Milton), 83:10-12 (McAlexander), 147:6-13 (Gillingham). Specifically, Netlist has never submitted any patent disclosure or licensing form to JEDEC, or otherwise notified JEDEC or its members, indicating that it believes the '918 and '054 patents are potentially essential to the DDR5 JEDEC standards. *See id.* Netlist also never submitted any patent disclosure or licensing form to JEDEC, or otherwise notified JEDEC or its members, indicating that it believes the '918 and '054 patents—as opposed to other genealogically-related patents—are potentially essential to any other JEDEC standard.

27. Netlist asserts that it effected disclosure of the '918 and '054 patents to JEDEC based on its disclosure of U.S. Patent Nos. 8,874,831 (“the '831 patent”) and 8,301,833 (“the '833 patent”) to JEDEC. *See id.*; DTX-10 at 47-50. [REDACTED]

[REDACTED] :



DTX-10 at 47.



█(Gillingham).

[REDACTED]

28. [REDACTED]

[REDACTED] DTX-10 at 16, 48, 50.

29. [REDACTED]

[REDACTED]

[REDACTED] Netlist's disclosure of the '831 and '833 patents does not mention any DDR5 standard.

*Id.*

30. The DDR4 standard that Netlist disclosed the '831 and '833 patents for is a distinct standard from the DDR5 standards. 05/30/2023 Bench Trial Tr. at 13:23-14:1 (Halbert), 15:25-16:15 (Halbert), 20:2-9 (Halbert), 35:14-17 (Hyun-Joong Kim), 82:13-84:15 (McAlexander), 107:23-108:5 (McAlexander), 108:11-16 (McAlexander), 109:12-110:1 (McAlexander), 148:8-149:10 (Gillingham). For example, the DDR5 PMIC component that Netlist relies on to show infringement of the '918 and '054 patent claims did not exist for DDR4. *Id.* at 35:14-17 (Hyun-Joong Kim), 83:13-84:15 (McAlexander), 148:22-149:10 (Gillingham).

**5. Netlist Believed that the '918 and '054 Patents Are Potentially Essential to the JEDEC DDR5 Standards**

31. Throughout this litigation, Netlist has asserted its belief that the '918 and '054 patents (and their claims) are essential to practicing the JEDEC DDR5 standards.

32. Prior to filing suit in December 2021, Netlist attended JEDEC meetings for the development of DDR5 and prosecuted patents in the '918 and '054 patent family. *See* 05/30/2023 Bench Trial Tr. at 29:6-19 (Martinez), 86:21-87:15 (McAlexander), 91:7-92:24 (McAlexander). After attending those meetings, Netlist amended its claims and filed new claims leading to the '918 and '054 patents that removed requirements for hybrid memory systems (*i.e.*, systems with both DRAM and Flash memory) and instead focused on non-hybrid memory

systems. (*i.e.*, systems having only DRAM memory, such as DDR5 DIMM products). *Id.* at 86:21-87:15 (McAlexander); 91:7-92:24 (McAlexander); JTX0003; JTX0004.

33. In its original Complaint, filed on December 20, 2021, Netlist asserted that the claims of the '918 patent are infringed by "any Samsung DDR5 LRDIMM and DDR5 RDIMM products made, sold, used and/or imported into the United States by Samsung that are JEDEC-standard compliant memory modules." Dkt. 1 at ¶ 38. Netlist asserted "the Accused Instrumentalities include, without limitation, any Samsung DDR5 LRDIMM and DDR5 RDIMM products made, sold, used and/or imported into the United States by Samsung that are JEDEC-standard compliant memory modules." *Id.* Netlist relied on JEDEC standards, including the JESD301 standard for the DDR5 Power Management Integrated Circuit, as the basis for the infringement allegations set forth in its original Complaint. *See id.* at ¶¶ 72-75. Netlist also indicated its intent to assert the '054 patent against Samsung "upon issuance." *Id.* at ¶ 32.

34. Netlist's May 3, 2022 Amended Complaint again relied on the JEDEC standards as the basis for its infringement allegations with respect to Samsung's DDR5 products. Dkt. 23 at ¶¶ 17, 54, 57 ("[T]he Accused Instrumentalities include, without limitation, any DDR5 products made, sold, offered for sale, used and/or imported into the United States by Samsung, including those modules utilizing Samsung's own power management IC (including at least PMIC components having part numbers: S2FPC01, S2FPD01, and S2FPD02) that Samsung confirms 'fully support JEDEC standards.'"), 58-60, 97-100, 111.

35. Throughout discovery, Netlist continued to assert its belief that the '918 and '054 patents are necessarily infringed by products using the DDR5 JEDEC standards. In its first sworn supplemental response to Interrogatory No. 15, Netlist stated as follows:

JEDEC manual No. 21T, Section 8.2.1, defines the term quote 'essential patent claims' as "Those patent claims, the use of which

would necessarily be infringed by the use, sale, offer for sale, or other disposition of a portion of a product in order to be compliant with the required portions of a final approved JEDEC standard.”

Netlist's asserted claims of U.S. patent Nos. 10,860,506, the '506 Patent, 10,949,339, the '339 Patent, 11,016,918, the '918 Patent, and 11,232,054, the '054 Patent, are necessarily infringed by the use, sale, offer for sale, or other disposition of a DDR4 LRDIMMs and DDR5 LRDIMMs and RDIMMs that are in compliance with the specifications of JEDEC standards and subsequent revisions identified in Netlist's preliminary infringement contentions and supplemental infringement contentions, which are incorporated here by reference.

Further, based on third-parties' document production, including data sheets for components supplied to Samsung's accused infringing DDR4 and DDR5 products, the structure, operation, and function of these components are in compliance with JEDEC standards, [See, e.g., MON000001 – MON001167; MPS00001 – MPS000236; NETLIST\_RAMBUS\_000032 – NETLIST\_RAMBUS\_000217; NETLIST\_RAMBUS\_000225 – NETLIST\_RAMBUS\_000388; NETLIST\_RAMBUS\_000389 – NETLIST\_RAMBUS\_000555; RENESAS-000001 – RENESAS-000310; RENESAS-000681 – RENESAS-000951; RENESAS-001121 – RENESAS-001406]. Thus, Netlist's asserted claims of the four patents are, “essential patent claims” as defined by JEDEC manual No. 21T, Section 8.2.1.

05/30/2023 Bench Trial Tr. at 43:8-44:9 (Netlist Interrogatory Response reading);

*see also id.* at 51:12-25 (Netlist's corporate representative Mr. Milton testifying

with respect to Netlist's interrogatory response that “[a]t that time I think that was correct”).

36. Netlist also asserted that it believed the '918 and '054 patents to be standard essential in its infringement contentions served on Samsung in this case. *See* 05/30/2023 Bench Trial Tr. at 74:7-18 (McAlexander), 83:7-12 (McAlexander). And Netlist's infringement expert, Dr. Mangione-Smith, based his infringement analysis on the standard essentiality of the '918 and '054 patents to the DDR5 JEDEC standards by comparing the claims to standardized DDR5 features in the accused products. *See id.* at 76:16-21 (McAlexander), 95:20-96:19 (Mr.

[REDACTED]

McAlexander testifying that “all of the representation that was made in the infringement report which [I] was rebutting was specifically pointing to the figures . . . that came out of the JEDEC standard”).

37. Netlist’s corporate representatives testified as to Netlist’s belief that the asserted ’918 and ’054 patents were essential to practicing the DDR5 JEDEC standards. *Id.* at 52:1-54:11 (Netlist’s Vice President of Engineering Scott Milton testifying that “[now], we believe that the ’918, in a general sense, is, you know, the – the – the concepts embodied in that patent are essential to DDR5 products that have voltage regulation on the module”), 29:20-30:8 (Martinez), 62:5-8 (Milton).

**6. Netlist’s JEDEC Representatives Knew or Were Willfully Blind to the Potential Essentiality of the ’918 and ’054 Patents to the JEDEC DDR5 Standards**

38. Netlist has been represented by numerous individuals in JEDEC over the course of its membership, [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

39. Since Netlist’s return to JEDEC in 2018, Netlist has attended JEDEC meetings, including meetings relating to the development of the JEDEC DDR5 standards. *See* DTX-34 at 2; 05/30/2023 Bench Trial Tr. at 29:6-19 (Martinez). Netlist’s representatives at DDR5 JEDEC meetings have included [REDACTED]. *See* DTX-14 at 2; DTX-28 at 2; DTX-34 at 2; 05/30/2023 Bench Trial Tr. at 25:25-26:9 (Martinez). Additionally,

[REDACTED]

[REDACTED]. DTX-10 at 16-

52.



40. Mr. Mario Martinez explained that the role of Netlist's JEDEC representatives is to facilitate Netlist's interactions with JEDEC, including the transfer and reporting of information between JEDEC and Netlist:

Q. After Doctor Lee left Netlist and you attended meetings yourself, what were you using for reliance on JEDEC – to relay to you the JEDEC technology that would be relevant?

A. The way that I would facilitate the information coming from JEDEC, I would write up a report that would summarize, at a high level, the activity on certain standards and then come back to the office and provide a download to our technical experts who then reviewed it. And – and there could be some takeaways from that where we had to go execute on something or we had to come back to JEDEC and report something. But it was never my decision on the how to – how to, you know – what the next step would be on any technology. It was always a decision made by executive management or by the technical team. I was just a facilitator.

Q. Okay, then. So after Dr. Hyun Lee left Netlist, you worked closely with the executive team to determine the actions that you took in the JEDEC committees. Is that fair?

A. I would report back to the executive team on what I learned from JEDEC and – yes. And in the case of NVDIMM-H, that was a task group that I was chairing at the time, and [Jordan] Horwich, who assisted me, would support me during the time with JEDEC and during the calls. And anything that was reported back, at that time with him in attendance, he would be assisting me on reporting back that information as well.

05/30/2023 Bench Trial Tr. at 25:10-26:9 (Martinez).

41. Included among the topics discussed and voted on by JEDEC during Netlist's attendance was the decision to move voltage regulation onto the DIMM for DDR5, as opposed to performing voltage regulation off the DIMM as had been done for DDR4. *See* 05/30/2023 Bench Trial Tr. at 15:25-16:8 (Halbert), 29:6-19 (Martinez), 63:2-17 (Milton), 81:19-82:18 (McAlexander), 149:1-10 (Gillingham); DTX-07; DTX-14 at 2, 11-15, 18; DTX-28 at 2, 4-10; DTX-33 at 2, 9-18, 21-22; DTX-34 at 2, 6-10, 14. By the time of Netlist's return to JEDEC in

2018, JEDEC was already discussing the development of a power management integrated circuit (PMIC) for DDR5 to perform this function. *See, e.g.*, 05/30/2023 Bench Trial Tr. at 140:14-23 (Gillingham); DTX-28 at 4-8. Netlist continued to attend JEDEC meetings where the adoption and design of the PMIC were discussed along with other DDR5 technologies. *See* DTX-28 at 4-8 (September 2018 JEDEC meeting minutes); DTX-33 at 9-18, 21-22 (December 2018 JEDEC meeting minutes); DTX-14 at 8-15, 18 (March 2019 JEDEC meeting minutes); DTX-34 at 6-15 (June 2019 JEDEC meeting minutes), DTX-07 at 2 (February 2020 Tally of Votes of the JEDEC Board of Directors regarding the “Power Management IC Specification”); 05/30/2023 Bench Trial Tr. at 29:6-19 (Martinez). At the time of the ’918 patent application’s filing in December 2020 and the ’054 patent application’s filing in May 2021, the DDR5 standards, including those for the DDR5 PMIC, were at an advanced stage. *See* 05/30/2023 Bench Trial Tr. at 15:25-16:15 (Halbert); DTX-31 (JEDEC DDR5 UDIMM Standard, JESD305, issued in January 2022); JTX0069 (JEDEC DDR5 PMIC Standard, JESD301-1A, Revision 1.8 issued in August 2021). Notably, however, DDR5 DIMM standards and revisions to the DDR5 PMIC standard issued only after the filing of the ’918 and ’054 patent applications. *See* DTX-31 (JEDEC DDR5 UDIMM Standard, JESD305, issued in January 2022); JTX0069 (JEDEC DDR5 PMIC Standard, JESD301-1A, Revision 1.8 issued in August 2021).

42. Through Netlist’s attendance at JEDEC during the development of the DDR5 standards, including those for the DDR5 PMIC, Netlist’s JEDEC representatives would have known that the ’918 and ’054 patents are Potentially Essential Patents to the DDR5 standards. As discussed at Section II.C *infra*, Netlist morphed its patent claims following its return to JEDEC in 2018 to focus on non-hybrid memory systems, which include the DDR5 DIMM systems then under development. The ’918 and ’054 patents include such claims, which recite

only volatile SDRAM memory in contrast to earlier claims that recited combinations of volatile and non-volatile memory. *See* JTX0003 at 46-48; JTX0004 at 46-48; Section II.C.4 *infra* (discussing the claims of the parent applications to the '918 and '054 patents); *see also* 05/30/2023 Bench Trial Tr. at 86:21-87:15 (McAlexander), 91:7-22 (McAlexander).

43. Based on the reports from Netlist's JEDEC representatives to the company's technical employees and executives, Netlist learned that JEDEC was developing a PMIC for DDR5 and developed the belief that the DDR5 PMIC necessarily uses concepts from the '918 and '054 patent specification.<sup>2</sup> Netlist was obligated to inform its JEDEC representatives that it believed the '918 and '054 patent family is essential to the DDR5 PMIC and DDR5 DIMMs such that Netlist was required to disclose those patents to JEDEC. *See* 05/30/2023 Bench Trial Tr. at 145:3-25 (Netlist's JEDEC expert Peter Gillingham acknowledging that it would be "underhanded" to intentionally silo off its JEDEC representative for purposes of avoiding JEDEC's patent disclosure duty); *see also id.* at 25:10-26:9 (Martinez) (testifying that the meetings with JEDEC representatives would result in "takeaways . . . where we had to go execute on something or we had to come back to JEDEC and report something"). Netlist's stated history of being "very aggressive" in its disclosure of Potentially Essential Patents upon "first observ[ing]" technologies covered by its patents at JEDEC further supports the Court's finding that Netlist's JEDEC representatives knew of Netlist's belief that the '918 and '054

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<sup>2</sup> At trial, Netlist's corporate representative and Vice President of Engineering, Scott Milton, testified that Netlist is a company of "about 120 folks, and 30 of those are engineers." 04/14/2023 Trial Tr. at 192:21-24 (Milton). As Netlist's JEDEC expert Mr. Gillingham testified, "in a small company" like Netlist, "it's more likely that the JEDEC representative . . . would have knowledge of the company's patents and would be more likely to make that connection and, therefore, have the disclosure obligation." 05/30/2023 Bench Trial Tr. at 145:7-14 (Gillingham).

patents were essential to the DDR5 standards. 05/30/2023 Bench Trial Tr. at 24:12-17 (Martinez); *see also id.* at 29:20-31:19 (Martinez).

44. Although Mr. Martinez was Netlist's JEDEC representative at meetings where DDR5 technology was discussed, he testified that he was not aware of which patents were essential to the JEDEC standards.

Q. So is it your testimony now that you personally have personal knowledge about which patents are essential to the JEDEC standards?

A. No, I do not have personal knowledge. I just know that our patents are based on products which can cover multiple areas. And per the JEDEC discussions at the board level, those patents can read on multiple technologies going forward. So I'm basing my comment on JEDEC portfolio board of director comments.

Q. Okay. So you're not aware of any Netlist patent disclosure or license assurance form that has used the word "DDR5"?

A. In the RAND letters that we submitted, which you've shown to me in exhibits, there are no mention of DDR5 in those exhibits.

05/30/2023 Bench Trial Tr. at 30:23-31:12 (Martinez).

45. Mr. Martinez's asserted lack of knowledge was despite the public nature of Netlist's lawsuit against Samsung. 05/30/2023 Bench Trial Tr. at 61:18-62:12 (Milton) ("Q. There were press releases issued about this case. Right? A. Okay. All right. There was a press release, yes. . . . Q. This press release related to the claim construction about this case. Right? A. That's what it says in the title, yes. . . . Q. Netlist did a press release about the jury verdict. Right? A. That's what it says, yes.").

46. Mr. Martinez's asserted lack of knowledge about the standard essentiality of Netlist's patents was also despite his being a Netlist employee and JEDEC Board of Directors member during this litigation, and despite voting on behalf of Netlist to approve the JEDEC PMIC standard.

[REDACTED]

Q. And we heard testimony from Mr. Mario Martinez earlier. Right?

A. Yes, sir.

Q. And he's been part of Netlist for many years. Correct?

A. Yes, he has.

Q. And he is the Netlist representative at JEDEC. Correct?

A. He represents Netlist as a member company, yes.

Q. And he's on the board of directors of JEDEC. Right?

A. He is, yes.

Q. And Mr. Martinez votes on standards on behalf of Netlist at JEDEC. Correct?

A. That is a true statement.

Q. And Mr. Martinez voted for approval of the JEDEC PMIC standard. Correct?

A. I believe that is the case, yes.

[ . . . ]

Q. And he was part of the company when Netlist and Samsung were litigating this case. Right?

A. He was part of the – he was – yeah, he was an employee of Netlist during that time period. Correct.

05/30/2023 Bench Trial Tr. at 62:15-63:21 (Milton); *see also* DTX-07.

47. Netlist's own JEDEC expert, Mr. Gillingham, acknowledged that, although not addressed in the JEDEC Patent Policy, intentionally siloing off JEDEC representatives in order to avoid JEDEC obligations would be underhanded.

Q. Sir, the question is very clear. If a company writes claims into a patent application that they have at the Patent Office and they specifically write it onto a JEDEC standard that's in the standard body, you agree that they have to disclose that patent or patent application to JEDEC. Correct?

A. If it had not been disclosed before, I would agree.

Q. And you agree with me that a company cannot intentionally conceal patents from its representatives in order to avoid having to make disclosures. Correct?

A. I don't see that in the JEDEC patent policy.

Q. So is it your testimony, sir, a company can dodge its disclosure obligations by intentionally siloing off the representatives that are attending JEDEC?

A. My opinion is in a small company it's more likely that the JEDEC representative, as I stated in my expert report, that the JEDEC representative would have knowledge of the company's patents and would be more likely to make that connection and, therefore, have the disclosure obligation.

Q. I understand --

A. But in the larger company, thousands of employees, it's very unlikely that the JEDEC representative would be aware of all the patents of that large company.

Q. But you agree with me that it would be improper for a company -- consistent with the JEDEC policy, it would be improper for a company saying, Hey, Hank is going to JEDEC next week. Don't tell Hank about the '000 Patent. That would be improper. Isn't that right, sir?

A. It may be somewhat underhanded, but I don't see anything specifically about that in the JEDEC patent policy.

05/30/2023 Bench Trial Tr. at 144:22-145:25 (Gillingham).

48. To the extent that Netlist's JEDEC representatives did not have actual knowledge of Netlist's belief that the '918 and '054 patents are Potentially Essential Patents to the DDR5 standards, Netlist's JEDEC representatives were willfully blind to the fact.

49. Specifically, the evidence establishes that Netlist's JEDEC representatives, including Mr. Mario Martinez, had a subjective belief that there was a high probability that the '918 and '054 patents were Potentially Essential Patents to the DDR5 standards, and would have had to take deliberate actions to avoid learning of Netlist's belief that the '918 and '054 patents were Potentially Essential Patents to the DDR5 standards.

50. Mr. Mario Martinez testified that Netlist's patents cover multiple products, and when patents are identified in JEDEC disclosures, they "read on current technologies and for future technologies. So whether it's DDR3, DDR4, DDR5, it doesn't matter." 05/30/2023 Bench Trial Tr. at 29:20-30:8 (Martinez). This admissions shows that Mr. Martinez had a subjective belief that there was a high probability that patents in the family of the '831 and '833 patents, which includes Netlist's '918 and '054 patents, are Potentially Essential to JEDEC standards other than the one identified in Netlist's disclosure of the '833 and '831 patents (*i.e.*, "JC-40 Item Number 314 'Proposed DDR4 RCD02 LCOM Protocol and RCW Definitions'," DTX-10 at 47, 49), including the DDR5 standard.

51. Further, Mr. Martinez testified that in his role as Netlist's JEDEC representative he would "report back to the executive team on what I learned from JEDEC." 05/30/2023 Bench Trial Tr. at 25:25-26:9 (Martinez). Such executives would have included Netlist's Vice President of Engineering, Scott Milton, who testified as to his belief that the '918 and '054 patents are essential to the DDR5 standards. *Id.* at 62:5-8 (Milton), 74:7-18 (McAlexander). Based on his interactions with Netlist's executive team and engineers, Mr. Martinez would be tasked with "takeaways . . . where we had to go execute on something or we had to come back to JEDEC and report something." *Id.* at 25:10-26:9 (Martinez). In the case of patent disclosures, Mr. Martinez testified that he would "provide the necessary information that's available for – for – *that was given to me by the – the legal counsel and also the patent engineer*, to submit that to JEDEC." *Id.* at 29:20-30:8 (Martinez) (emphasis added). Mr. Martinez would therefore have had to take deliberate action and deviate from Netlist's standard procedure for JEDEC disclosures in order to avoid learning of Netlist's belief that the '918 and '054 patents were Potentially Essential Patents as to the DDR5 standards.

52. As shown above, by at least December 20, 2021, Netlist believed that the '918 and '054 patents were essential to the DDR5 standards, as set forth in, for example, Netlist's Complaint, Amended Complaint, interrogatory responses, and infringement contentions. *See supra* at Section II.B.5. Netlist's lawsuit against Samsung was public and Netlist took affirmative steps to publicize the suit. 05/30/2023 Bench Trial Tr. at 61:20-62:12 (Milton) ("Q. There were press releases issued about this case. Right? A. Okay. All right. There was a press release, yes. . . . Q. This press release related to the claim construction about this case. Right? A. That's what it says in the title, yes. . . . Q. Netlist did a press release about the jury verdict. Right? A. That's what it says, yes.""). Therefore, Mr. Martinez would have had to take deliberate action to avoid learning of Netlist's belief, stated numerous times during the litigation, that the '918 and '054 patents were Potentially Essential Patents as to the DDR5 standards.

**7. JEDEC Did Not Consider Noninfringing Alternatives to the '918 and '054 Patents, Resulting in Prejudice to Samsung and the Industry**

53. Because Netlist never disclosed the '918 and '054 patents and its unwillingness to license those patents on RAND terms, JEDEC never considered alternatives for the DDR5 standards that would avoid the '918 and '054 patent claims. DTX-08 at 33-34 ("JEDEC committees and task groups shall consider reasonable workarounds and technical alternatives (but are not required to implement such workarounds or alternatives) within the earlier of: a) balloting, or b) one-hundred twenty (120) calendar days of receiving Notice of Refusal to offer Licenses on RAND Terms."); 05/30/2023 Bench Trial Tr. at 14:12-15:5 (Halbert), 33:14-34:9 (former CTO of Netlist Hyun Lee testifying: "The reason why I paid attention to JEDEC proposal is for the following reasons: If what is being proposed is something that we have prior art, then we would disclose that so that they could look for other solutions.").



54. At the bench trial, Samsung's technical expert, Mr. McAlexander, testified there were alternatives that JEDEC could have considered had it been informed of Netlist's position regarding the essentiality of the '918 and '054 patents to the DDR5 standards.

Q. Did Netlist's failure to disclose the '918 and '054 Patents to DDR5 have any negative impact on Samsung and others in the JEDEC committees?

A. Well, I think in addition to Samsung, I think all members were prejudiced as a result of this because they did not have the understanding or the knowledge that these particular patent claims would be JEDEC standard-essential to the DDR5. So, therefore, they continued their design and implementation of the DDR spec in a vacuum without knowledge that they would be in the crosshairs of these particular patents.

Q. And is that what you're indicating here on your slide?

A. That is correct. I'm showing the different JEDEC standards that were being in the process of being completed during the same time frame that the '918 and the '054 Patent applications were being filed.

Q. What could Samsung and other JEDEC members have done differently had they been aware of the '918 and '054?

A. Oh, they could have done considerable things differently. Some testimony was already in the hearing today with regard to taking some of these voltage switching circuits and putting them off-module and putting them on the board. One could also take the required buck converter and maybe one or more of those and switching it out with an LDO. These were possibilities that – any one of which could have been done.

Q. So what were the consequences of Netlist's failure to disclose when it had a duty to do so?

A. I believe the – it prejudiced the entire industry that was the members of the particular JEDEC standards. They then went in blindly to finish the design of the standards not realizing that Netlist would be providing patented technology that they believed would read on the particular standard.

05/30/2023 Bench Trial Tr. at 85:6-86:11 (McAlexander); *see also id.* at 36:8-23 (Hyun-Joong Kim) (explaining that use of a PMIC was not necessary to satisfy the voltage requirements for DDR5 DIMMs).

**8. Samsung's Accused DDR5 Products Comply with the JEDEC DDR5 Standards**

55. Samsung's accused DDR5 DIMM products, including its DDR5 RDIMM, DDR5 UDIMM, and DDR5 SODIMM products and the components used in them, are designed to comply with the relevant DDR5 JEDEC standards. Samsung's corporate representatives and component suppliers confirmed the standard compliance of the accused DDR5 products throughout the trial held in this case:

Q. Why did Samsung include a PMIC in its DDR5 memory modules?

A. Sam – that is because Samsung fully complies with JEDEC standards, and JEDEC decided to include PMIC on DDR5 specifications. That is why.

05/30/2023 Bench Trial Tr. at 35:18-22 (Hyun-Joong Kim).

Q. So voltage regulation on DIMM helps the DIMM vendors to attain the required lower VDD voltages, and, thus, to meet the maximum power budget. Is that correct?

A. No.

Q. Which part do you disagree with?

A. Okay. All right. First of all, as far as 1.1 volt is concerned, that does not have to be on DIMM. It could be achieved on a board through voltage regulator and a switch converter.

THE CHECK INTERPRETER: It might be slightly different. "So, first of all, as to 1.1 volts, that can be obtained through a voltage regulator or switched converter on the board. So they do not necessarily be on the DIMM."

Q. And why didn't Samsung do that?

[REDACTED]

A. That is because Samsung manufactures fully JEDEC-compliant products, and JEDEC decided PMIC on DIMM.

*Id.* at 36:8-23 (Hyun-Joong Kim).

Q. Will you please state your full name for the record?

A. My name is Bruce Lo.

Q. What is your current position at Renesas?

A. I'm a design engineer.

Q. You are a design engineer on what?

A. On the digital circuit. On the PMIC, P8911 and P8900.

Q. Do you see that for P8911, the first paragraph, it states that: "The PMIC is fully compliant to the JEDEC DDR5 PMIC specification"? Do you see that?

A. Yes, I do.

Q. Is this a true and correct statement?

A. Yes.

*Id.* at 38:25-39:12 (Lo).

Q. So Exhibit Number 3 is a data sheet on P8900 with production number RENESAS-001407. Have you seen this document before, Mr. Lo?

A. Yes. The same as the 8911, I have seen in – a – a similar one.

Q. Does the data sheet actually describe the function, structure, and operation of P8900?

A. Yes.

Q. And does P8900 fully comply with JEDEC DDR5 PMIC standard?

A. Yes.

*Id.* at 39:21-40:6 (Lo).

[REDACTED]

Q. For topic No. 78, is it your testimony that Samsung's DDR5 PMICs implement all sections of the JEDEC PMIC standards?

A. Yes, it is correct that Samsung's DDR5 PMIC complies with JEDEC's specifications.

Q. And you cannot identify any sections of the JEDEC PMIC standards that Samsung's DDR5 PMICs that do not implement. Correct?

A. Yes, that's correct.

*Id.* at 131:23-132:5 (Kyungsoo Park).

56. Documentation for the accused DDR5 products and components used in those products also confirm that Samsung designs its products so that they will comply with the DDR5 JEDEC standards. *See, e.g.*, JTX0009 (Samsung DDR5 RDIMM Datasheet) at 6 (showing that the accused DDR5 RDIMM products are [REDACTED]); JTX0060 (Samsung DDR5 SODIMM Datasheet) at 5, (the [REDACTED])

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

57. Samsung's technical expert in this case, Mr. Joseph McAlexander, also confirmed that the accused Samsung DDR5 products are designed to comply with the DDR5 JEDEC standards. 05/30/2023 Bench Trial Tr. at 84:16-85:5 (McAlexander), 95:2-19 (McAlexander), 96:1-19 (McAlexander).

58. Additionally, Netlist acknowledged in its sworn interrogatory responses in this case that the accused DDR5 products are in compliance with the relevant DDR5 JEDEC standards.

Netlist's asserted claims of U.S. patent Nos. 10,860,506, the '506 Patent, 10,949,339, the '339 Patent, 11,016,918, the '918 Patent, and 11,232,054, the '054 Patent, are necessarily infringed by the use, sale, offer for sale, or other disposition of a DDR4 LRDIMMs and DDR5 LRDIMMs and RDIMMs that are in compliance with the specifications of JEDEC standards and subsequent revisions identified in Netlist's preliminary infringement contentions and supplemental infringement contentions, which are incorporated here by reference.

Further, based on third-parties' document production, including data sheets for components supplied to Samsung's accused infringing DDR4 and DDR5 products, the structure, operation, and function of these components are in compliance with JEDEC standards, [See, e.g., MON000001 – MON001167; MPS00001 – MPS000236; NETLIST\_RAMBUS\_000032 – NETLIST\_RAMBUS\_000217; NETLIST\_RAMBUS\_000225 – NETLIST\_RAMBUS\_000388; NETLIST\_RAMBUS\_000389 – NETLIST\_RAMBUS\_000555; RENESAS-000001 – RENESAS-000310; RENESAS-000681 – RENESAS-000951; RENESAS-001121 – RENESAS-001406]. Thus, Netlist's asserted claims of the four patents are, "essential patent claims" as defined by JEDEC manual No. 21T, Section 8.2.1.

*Id.* at 43:14-44:9 (Netlist Interrogatory Response reading); *see also id.* at 51:12-25 (Netlist's corporate representative and Vice President of Engineering, Scott Milton, testifying with respect to Netlist's interrogatory response that "[a]t that time I think that was correct").

59. Netlist made the same accusation regarding the standard compliance of Samsung's DDR5 memory modules in its infringement contentions. *Id.* at 74:7-18

[REDACTED]

(McAlexander) (indicating Netlist’s belief that “Samsung’s DDR5 . . . are JEDEC standard-compliant memory modules”).

**C. Prosecution Laches**

**1. The ’918 and ’054 Patents Were Filed More than 13 Years After Their Related Provisional Application**

61. The ’918 and ’054 patents both claim priority to a provisional application No. 60/941,586 (“the ’586 provisional application”), which was filed on June 1, 2007. JTX0004 at 1-2.

62. The ’918 patent was filed on December 30, 2020—more than 13 years after the ’586 provisional application. JTX0003; *see also* 04/14/2023 Trial Tr. at 248:17-249:21 (Mr. Milton testifying: “Q. And a lot of time elapsed. In fact, you agree that over 12 years elapsed between when you had that original filing and when we had the ’918 patent filed with the Patent Office in 2020. Isn’t that right? A. That is correct.”). The ’918 patent is the seventh application in a series of applications (including seven continuations) that were filed between June 1, 2008 and May 24, 2021. *Id.*

63. The ’054 patent was filed on May 24, 2021—almost 14 years after the ’586 provisional application. JTX0004. The ’054 patent is a continuation of the ’918 patent. *Id.*

**2. Netlist Filed Six Applications Claiming Priority to the Same Provisional Application Before Filing the Applications That Issued as the ’918 and ’054 Patents**

64. On June 2, 2008, Netlist filed Application No. 12/131,873 (“the ’873 application”) that claimed priority to the ’586 provisional application. JTX0004 at 1-2. The ’873 application was abandoned and did not issue as a patent. *Id.*

65. On September 29, 2008, Netlist filed Application No. 12/240,916 (“the ’916 application”) that was a continuation of the ’873 application. *Id.* The ’916 application issued as U.S. Patent No. 8,301,833. *Id.*

66. On July 26, 2012, Netlist filed Application No. 13/559,476 (“the ’476 application”) that was a continuation of to the ’916 application. *Id.* The ’476 application issued as U.S. Patent No. 8,874,831. *Id.*

67. On September 17, 2014, Netlist filed Application No. 14/489,269 (“the ’269 application”) that was a continuation of the ’476 application. *Id.* The ’269 application issued as U.S. Patent No. 9,158,684. *Id.*

68. On August 31, 2015, Netlist filed Application No. 14/840,865 (“the ’865 application”) that was a continuation of the ’269 application. *Id.* The ’865 application issued as U.S. Patent No. 9,928,186.

69. On March 23, 2018, Netlist filed Application No. 15/934,416 (“the ’416 application”) that was a continuation of the ’865 application. *Id.* The ’416 application was abandoned and did not issue as a patent. *Id.*

70. On December 30, 2020, Netlist filed Application No. 17/138,766 (“the ’766 application”) that was a continuation of the ’416 application. *Id.* The ’766 application issued as the ’918 patent. *Id.*

71. On May 24, 2021, Netlist filed Application No. 17/328,019 (“the ’019 application”) that was a continuation of the ’766 application. *Id.* The ’019 application issued as the ’054 patent. *Id.*

**3. The Technical Field of the '918 and '054 Patent Family Was Hybrid Memory**

72. The named inventor of the '918 and '054 patent family, Mr. Scott Milton, testified that the technical field of this patent family, as evidenced by the title, figures, and specification, consisted of putting volatile memory (e.g. DRAM) and non-volatile memory (e.g. flash memory) on a single memory module, which is referred to as hybrid memory.

Q. And you didn't invent the concept of moving data between DRAM and non-volatile memory. Isn't that right?

A. That's correct.

Q. The concept you invented was putting that all on one module. Is that right?

A. Correct.

Q. And in figure 3A below we, in fact, see that. We see a flash memory chip on the right and a DRAM on the left, and they're all in one module. Isn't that right, sir?

A. That is what 3A shows, yes.

Q. And we see that in 4B as well, don't we, sir? Do you see that there? 4B you have the DRAM on the left and the flash memory on the right that's all in one module. Isn't that right?

A. That is correct.

...

Q. (BY MR. McKEON) But do you see the DRAM on the left and flash on the right, in both of these figures they're both on the module. Isn't that right?

A. In those figures that is correct.

Q. And that's the invention--the hybrid memory invention, the NVDIMM invention. Correct?

A. Yes. It has the flash and the DRAM, yes.

...



[REDACTED]

Q. (BY MR. McKEON) You see 5A, and you see the DRAM and the flash there. Isn't that right, sir?

A. Yes, sir.

Q. Okay. And then, again, it's all on the same module. Isn't that right?

A. Yes, sir.

...

Q. (BY MR. McKEON) And we see, again, figure 7 and figure 8A you got the DRAM and the flash memory chips. They're all on the module. Isn't that right?

A. Yes, sir.

Q. And then, finally, in a figure I believe you talked about in your direct, figure 16, and this is the power module that you referred to in your direct. Isn't that right?

A. That is correct.

Q. All right. And this is part of the -- what you claim your invention is. Isn't that right?

A. That is correct.

...

Q. All right. And let's just go to column 1. And right here in column 1 we see at the top the flash -- you got, again, the description of the invention here. What you have is "Flash-DRAM Hybrid Memory Module." Isn't that right?

A. Yes, I see that.

Q. Okay. And then now the technical field, which goes down -- the bottom of 1 and the top of 2, and we can just read it together: "The present disclosure relates generally to computer memory devices and, more particularly, to devices that employ different types of memory devices such as combinations of flash and random access memories." Do you see that?

A. I see that.

Q. So the technical field that you describe in the patent that the public -- when they get this patent and they see, they look at the

technical field and they see the combination of flash and DRAM.  
Isn't that right?

A. That's what it shows on this page.

04/14/2023 Trial Tr. at 244:19-247:24 (Milton).

**4. The Claims of the Six Applications Filed Prior to the '918 and '054 Patents Recited Hybrid Memory**

73. From the first utility application (the '873 application) through the originally filed '416 application, the claims of the applications in the '918 and '054 patent family recited hybrid memory—that is, a combination of volatile and non-volatile memory. 05/30/2023 Bench Trial Tr. at 91:11-22 (McAlexander). For example, claim 1 of the '873 application, claim 1 of the '916 application, claim 1 of the '476 application, claim 1 of the '269 application, and claim 1 of the '865 application all recited both “a volatile memory subsystem” and “a non-volatile memory subsystem.” DDX-201 at 33; DDX-202 at 36; DDX-203 at 38; DDX-204 at 37; DDX-205 at 61; *see also* 05/30/2023 Bench Trial Tr. at 86:21-87:15, 91:7-22 (McAlexander). Similarly, on March 23, 2018, Netlist filed the '416 application with claim 1 that recited “a first volatile memory subsystem,” “a second volatile memory subsystem,” and “a non-volatile memory subsystem.” JTX0050 at 55; *see also* 05/30/2023 Bench Trial Tr. at 91:7-22 (McAlexander).

**5. Netlist Attended JEDEC Meetings To Understand the Direction of the Industry and After Attending JEDEC Meetings Related to the Emerging DDR5 Technology, Netlist Amended Its Claims To Remove Hybrid Memory**

74. Netlist's former CTO, Dr. Hyun Lee, testified that the purpose of attending JEDEC meetings was “to understand which direction the industry was going for, the trend” and “to understand how the industry was moving, in which direction.” 05/30/2023 Bench Trial Tr. at 32:18-25 (Hyun Lee).

75. As previously mentioned, Netlist was restricted from participating in JEDEC from February 2015 through August 2018, when Netlist refused to offer certain of its patents on RAND licensing terms. DTX-10 at 16; 05/30/2023 Bench Trial Tr. at 27:11-28:21 (Martinez). Netlist's membership in the JC-40, JC-42, and JC-45 committees was reinstated in August 2018. DTX-10 at 16; 05/30/2023 Bench Trial Tr. at 15:19-17:25 (Halbert).

76. The members of JEDEC, including Samsung, began to develop standards for DDR5 DIMM technology in 2016, and work on the DDR5 standards was well underway in August 2018, when Netlist's JEDEC membership was reinstated. 05/30/2023 Bench Trial Tr. at 15:25-16:8, 17:11-25 (Halbert).

77. Approximately four months after filing the '416 application in July 2018, and after Netlist's JEDEC membership was reinstated, Netlist's representative Mario Martinez attended a JC-40 JEDEC committee meeting in December 2018. DTX-33 at 2.

Q. Have you attended any JEDEC meetings where DDR5 was discussed?

A. I've attended JEDEC meetings that discussed DDR5, yes.

Q. When did you start attending meetings where DDR5 was being developed or discussed?

A. I believe it was upon my return in August, the first meeting after our -- when we were -- our membership was renewed back in August.

Q. After 2019, did you continue to attend JEDEC meetings involving DDR5?

A. Upon my return in August, I continued to attend committee sessions which had discussions on DDR5.

Q. Including in this year, 2022?

A. Up to today.

05/30/2023 Bench Trial Tr. at 29:6-19 (Martinez).



78. One of the presentations made at the December 2018 meeting was the proposed full specification of the DDR5 PMIC5000. DTX-33 at 21-22. Mr. Martinez attended two additional JEDEC meetings in March 2019 and June 2019 where the full PMIC specification was again presented. DTX-14 at 2, 15; DTX-34 at 2, 13.

79. The PMIC is the DDR5 module's on-board Power Management Integrated Circuit, which provides power and control to the various components of the memory module. 04/19/2023 Trial Tr. at 884:19-24 (McAlexander); *see also* 04/18/2023 Trial Tr. at 636:24-25 (Jung Bae Lee) ("Q. DDR5 has power management control on the module? A. Yes, and it has the name of PMIC.").

80. The DDR5 standard compliant memory modules do not include hybrid memory, as confirmed by Samsung's technical expert Mr. McAlexander.

Q. What are you showing here, sir?

A. What I'm showing here is a outline of a DDR5 Samsung product that's been accused of infringing the '918 Patent.

Q. And what are you labeling in red there?

A. What I'm labeling in red here is the different black components that you see that are populated on this particular module, and the only components that are there for storage of information, data, is the DRAM.

Q. Are there any flash chips on the DDR5 modules?

A. No, there are no flash chips on the DDR5 module.

Q. And what are you showing here on DDX 3-30?

A. What I'm showing here is an additional component that's on the module, DRAM-only module, that is called the PMIC, or the power management integrated circuit, and that is a smaller little black rectangular box more located toward the center of the module.

04/19/2023 Trial Tr. at 883:24-884:14 (McAlexander).

81. After attending the JEDEC meetings where the DDR5 PMIC standard was disclosed, Netlist filed an amendment of the '416 application on July 22, 2019. JTX0050 at 213-219. The amendment canceled the previous claims that recited hybrid memory, and introduced new claims that no longer recited hybrid memory. *Id.* at 214; *see also* 05/30/2023 Bench Trial Tr. at 91:23-92:6 (McAlexander). The July 22, 2019 amendment was the first time that a claim did not recite hybrid memory in this patent family. 05/30/2023 Bench Trial Tr. at 91:7-92:6 (McAlexander).

82. The '416 application was ultimately abandoned (JTX0050 at 418-419), but on December 30, 2020, Netlist filed the '766 application as a continuation of the '416 application. JTX0003. The '766 application issued as the '918 patent. *Id.* Like the amended claims of the '416 application, the claims of the '918 patent do not recite hybrid memory. *Id.*; *see also* 05/30/2023 Bench Trial Tr. at 92:7-11 (McAlexander). The claims of the continuation of the '918 patent, which was filed on May 24, 2021 and issued as the '054 patent, also do not recite hybrid memory. JTX0004; *see also* 05/30/2023 Bench Trial Tr. at 92:12-13 (McAlexander).

#### **6. Netlist Has Never Disclosed the '918 or '054 Patents to JEDEC**

83. Netlist never disclosed the '918 and '054 patents to JEDEC despite amending its claims in an attempt to capture the emerging DDR5 standard. 05/30/2023 Bench Trial Tr. at 31:7-12 (Martinez), 64:4-7 (Milton), 83:10-12 (McAlexander), 147:6-13 (Gillingham). Specifically, Netlist has never submitted any patent disclosure or licensing form to JEDEC, or otherwise notified JEDEC or its members, indicating that it believes the '918 and '054 patents are potentially essential to the DDR5 JEDEC standards. *See id.* Netlist also never submitted any patent disclosure or licensing form to JEDEC, or otherwise notified JEDEC or its members, indicating that it believes the '918 and '054 patents—as opposed to other genealogically-related patents—are potentially essential to any other JEDEC standard.

[REDACTED]

84. Netlist asserts that it effected disclosure of the '918 and '054 patents to JEDEC based on its disclosure of U.S. Patent Nos. 8,874,831 ("the '831 patent") and 8,301,833 ("the '833 patent") to JEDEC. *See id.*; DTX-10 at 47-50. Netlist disclosed those patents to JEDEC on August 7, 2018 through its submission of License Assurance/Disclosure Forms to JEDEC:

[REDACTED]

[REDACTED]

DTX-10 at 47.

[REDACTED]

DTX-10 at 49; *see also* 05/30/2023 Bench Trial Tr. at 83:13-23 (McAlexander); 137:17-21 (Gillingham).

[REDACTED]

85. [REDACTED]

[REDACTED]. DTX-10 at 16, 48, 50.

86. Netlist disclosed the '831 and '833 patents to JEDEC as [REDACTED]

[REDACTED].” DTX-10 at 47, 49. Netlist’s disclosure of the '831 and '833 patents does not mention any DDR5 standard. *Id.*

87. The DDR4 standard for which Netlist disclosed the '831 and '833 patents is a distinct standard from the DDR5 standards. 05/30/2023 Bench Trial Tr. at 13:23-14:1 (Halbert), 15:25-16:15 (Halbert), 20:2-9 (Halbert), 35:14-17 (Hyun-Joong Kim), 82:13-84:15 (McAlexander), 107:23-108:5 (McAlexander), 108:11-16 (McAlexander), 109:12-110:1 (McAlexander), 148:8-149:10 (Gillingham).

**7. Netlist Did Not Inform Its JEDEC Representative of Allegedly Standard Essential Patents**

88. To the extent that Netlist’s JEDEC representative Mr. Martinez was not aware of the '918 and '054 patents, or Netlist’s belief those patents were essential, it could only have been because Netlist’s executives improperly kept this information from him to avoid JEDEC’s disclosure obligations that would have triggered JEDEC’s requirement to consider alternatives.

89. Although Mr. Martinez was Netlist’s JEDEC representative at meetings where DDR5 technology was discussed, he testified that he was not aware of which patents were standard essential to the JEDEC standards.

Q. So is it your testimony now that you personally have personal knowledge about which patents are essential to the JEDEC standards?

A. No, I do not have personal knowledge. I just know that our patents are based on products which can cover multiple areas. And per the JEDEC discussions at the board level, those patents can read on multiple technologies going forward.



[REDACTED]

So I'm basing my comment on JEDEC portfolio board of director comments.

Q. Okay. So you're not aware of any Netlist patent disclosure or license assurance form that has used the word 'DDR5'?

A. In the RAND letters that we submitted, which you've shown to me in exhibits, there are no mention of DDR5 in those exhibits.

05/30/2023 Bench Trial Tr. at 30:23-31:12 (Martinez).

90. Mr. Martinez's asserted lack of knowledge was despite the public nature of Netlist's lawsuit against Samsung. 05/30/2023 Bench Trial Tr. at 61:20-62:12 (Milton) ("Q. there were press releases issued about this case. Right? A. Okay. All right. There was a press release, yes. . . . Q. This press release related to the claim construction about this case. Right? A. That's what it says in the title, yes. . . . Q. Netlist did a press release about the jury verdict. Right? A. That's what it says, yes.").

91. Mr. Martinez's asserted lack of knowledge about the standard essentiality of Netlist's patents was also despite his being a Netlist employee and board of directors member during the litigation, and despite voting on behalf of Netlist on the approval of the JEDEC PMIC standard.

Q. And we heard testimony from Mr. Mario Martinez earlier. Right?

A. Yes, sir.

Q. And he's been part of Netlist for many years. Correct?

A. Yes, he has.

Q. And he is the Netlist representative at JEDEC. Correct?

A. He represents Netlist as a member company, yes.

Q. And he's on the board of directors of JEDEC. Right?

A. He is, yes.

[REDACTED]

Q. And Mr. Martinez votes on standards on behalf of Netlist at JEDEC. Correct?

A. That is a true statement.

Q. And Mr. Martinez voted for approval of the JEDEC PMIC standard. Correct?

A. I believe that is the case, yes.

...

Q. And he was part of the company when Netlist and Samsung were litigating this case. Right?

A. He was part of the -- he was -- yeah, he was an employee of Netlist during that time period. Correct.

05/30/2023 Bench Trial Tr. at 62:15-63:21 (Milton).

92. Netlist's own JEDEC expert, Mr. Gillingham, acknowledged that, although not addressed in the JEDEC patent policy, intentionally siloing off JEDEC representatives in order to avoid JEDEC obligations would be underhanded.

Q. Sir, the question is very clear. If a company writes claims into a patent application that they have at the Patent Office and they specifically write it onto a JEDEC standard that's in the standard body, you agree that they have to disclose that patent or patent application to JEDEC. Correct?

A. If it had not been disclosed before, I would agree.

Q. And you agree with me that a company cannot intentionally conceal patents from its representatives in order to avoid having to make disclosures. Correct?

A. I don't see that in the JEDEC patent policy.

Q. So is it your testimony, sir, a company can dodge its disclosure obligations by intentionally siloing off the representatives that are attending JEDEC?

A. My opinion is in a small company it's more likely that the JEDEC representative, as I stated in my expert report, that the JEDEC representative would have knowledge of the company's patents and

██

would be more likely to make that connection and, therefore, have the disclosure obligation.

Q. I understand --

A. But in the larger company, thousands of employees, it's very unlikely that the JEDEC representative would be aware of all the patents of that large company.

Q. But you agree with me that it would be improper for a company -- consistent with the JEDEC policy, it would be improper for a company saying, Hey, Hank is going to JEDEC next week. Don't tell Hank about the '000 Patent. That would be improper. Isn't that right, sir?

A. It may be somewhat underhanded, but I don't see anything specifically about that in the JEDEC patent policy.

05/30/2023 Bench Trial Tr. at 144:22-145:25 (Gillingham).

**8. Samsung and JEDEC Developed DDR5 Technology During Netlist's Delay**

93. Samsung and other JEDEC members developed the DDR5 standard with a PMIC component for years while Netlist waited to file its claims. *See, e.g.*, DTX-33; DTX-14; DTX-34; *see also* 05/30/2023 Bench Trial Tr. at 15:25-16:8 (Halbert) ("Q. On slide 16 you have a bit of a timeline. Can you explain this to the Court? A. Okay. The red bars indicate the time when a majority of the work was done on the different DIMM standards. ... And again, for DDR5 from 2016 to 2019, most DDR5 DIMM work was done."), 17:11-25 (Halbert) ("Q. What permitted Netlist to return to JEDEC in August of 2018? A. They issued notice that they are willing then to license their patents under RAND terms. ... Q. And was there work on any of the relevant standards done at that time frame? A. Definitely. Q. Was DDR5 underway? A. Well underway, yes.").

94. The JEDEC members (including Samsung) included the PMIC in the standard for DDR5 memory modules in response to customer demand.

Q. What was the reason for JEDEC to decide to include PMIC in its DDR5 specifications?

A. That is because the users, meaning the customers of DDR5, mainly requested that to be included.

Q. Why did they include -- request to have that feature included?

A. There could be many different reasons, and it's quite complicated. However, that is because the users found that there are many benefits in regards to power and from design perspective at the system level.

THE CHECK INTERPRETER: It might be slight different. Actually there could be many different reasons, and technically it's quite complicated. But from the user's perspective, their claim was that there would be benefits from the perspective of the power or design on the system level.

Q. So the -- as far as Samsung's concerned, the advantage outweighs the disadvantage. Correct?

A. Technically, it wasn't clear as to whether the advantages or disadvantages, either of them was predominant. However, Samsung's point of view is that since Samsung is a supplier, it would be wise to listen to customers' and users' desires.

04/18/2023 Trial Tr. at 865:14-19, 867:23-6, 869:7-12 (Hyun Joong "Johnny" Kim); *see also*

05/30/2023 Bench Trial Tr. at 35:23-36:1 (Hyun-Joong Kim) ("Q. What was the reason for JEDEC to decide to include PMIC in its DDR5 specifications? A. That is because the users, meaning the customers of DDR5, mainly requested that to be included.").

95. Samsung included the PMIC in its DDR5 products because Samsung complies with JEDEC standards when designing its products. 05/30/2023 Bench Trial Tr. at 35:18-22 (Hyun-Joong Kim) ("Q. Why did Samsung include a PMIC in its DDR5 memory modules? A. Sam – that is because Samsung fully complies with JEDEC standards, and JEDEC decided to include PMIC on DDR5 specifications. That is why.").

96. Samsung's DDR5 products, including the PMIC components, comply with JEDEC standards. 05/30/2023 Bench Trial Tr. at 84:16-85:5 (McAlexander). The representative of Renesas, the supplier of Samsung's PMIC components, confirmed that the PMICs that are supplied to Samsung are fully compliant with the JEDEC DDR5 PMIC specifications.

Q. Will you please state your full name for the record?

A. My name is Bruce Lo.

Q. What is your current position at Renesas?

A. I'm a design engineer.

Q. You are a design engineer on what?

A. On the digital circuit. On the PMIC, P8911 and P8900.

Q. Do you see that for P8911, the first paragraph, it states that: "The PMIC is fully compliant to the JEDEC DDR5 PMIC specification"? Do you see that?

A. Yes, I do.

Q. Is this a true and correct statement?

A. Yes.

Q. Is there any deviation in P8911 from the requirements in the PMIC5100 power management IC standard as shown here?

A. No.

Q. And does P8900 fully comply with JEDEC DDR5 PMIC standard?

A. Yes.

05/30/2023 Bench Trial Tr. at 38:25-39:12, 39:18-20, 40:4-6 (Lo).

97. Without knowledge of Netlist's non-hybrid memory claims, Samsung and other JEDEC members continued their design and implementation of the DDR5 specification.

05/30/2023 Bench Trial Tr. at 85:6-20 (McAlexander).

**9. Shortly After the '918 and '054 Patents Issued, Netlist Accused Samsung's DDR5 Products of Infringement**

98. The '918 patent issued on May 25, 2021. JTX0003. Just a few months later, on December 20, 2021, Netlist asserted the '918 patent in litigation against Samsung, accusing Samsung's DDR5 products of infringing the '918 patent. Dkt. 1. In its Complaint, Netlist also indicated its intent to assert the claims of the not yet issued continuation of the '918 patent. Dkt. 1 at 12.

99. The '054 patent issued on January 25, 2022. JTX0004. A few months later, Netlist filed a First Amended Complaint asserting the '054 patent against Samsung's DDR5 memory modules. Dkt. 23.

100. Netlist's infringement allegations against Samsung's DDR5 memory modules specifically focused on the PMIC component and cited the JEDEC PMIC specification for DDR5. Dkt. 1 at ¶¶ 67-78; Dkt. 23 at ¶¶ 92-116.

**D. Unclean Hands**

**1. Netlist Repeatedly Contended the '918, '054, and '339 Patents Were Essential**

101. From the outset of this litigation, in its December 20, 2021 complaint, Netlist took the position that the asserted '918, '054, and '339 patents were standard essential by accusing "JEDEC-standard compliant memory modules." 05/30/2023 Bench Trial Tr. at 48:19-49:13 (Milton); Dkt. 1 ¶ 38.

102. Netlist relied on the JEDEC standards themselves to allege infringement of the patents, demonstrating its position that the asserted '918, '054, and '339 patents were essential to practicing the JEDEC standards. 05/30/2023 Bench Trial Tr. at 49:14-50:6 (Milton); Dkt. 1 ¶¶ 61, 72.

103. In its May 3, 2022 amended complaint, Netlist continued to rely on the JEDEC standards to allege infringement of the patents, solidifying its position that the asserted '918, '054, and '339 patents were essential to practicing the JEDEC standards. 05/30/2023 Bench Trial Tr. at 50:12-51:1 (Milton); Dkt. 23 ¶¶ 87, 97.

104. Netlist's May 4, 2023 infringement contentions affirmed Netlist's position that it contended that the '918, '054, and '339 patents were standard essential. Specifically, Netlist accused JEDEC standard-compliant memory modules of infringing the asserted patents, again demonstrating its position that any standard complaint memory module infringed the patents because the patents were essential to practicing the standard. 05/30/2023 Bench Trial Tr. at 74:7-18, 93:7-15 (McAlexander).

105. On June 8, 2022, Netlist sent a letter to Samsung proposing to license its [REDACTED] [REDACTED] DTX-32 at 2; 05/30/2023 Bench Trial Tr. at 57:8-20 (Milton). Netlist expressly identified the '339 patent as one of the [REDACTED] that is essential to implement the JEDEC standards. DTX-32 at 8; 05/30/2023 Bench Trial Tr. at 57:21-58:10 (Milton).

106. Netlist affirmed its contention that the '918, '054, and '339 patents are standard essential in its first supplemental interrogatory response from November 21, 2022:

JEDEC manual No. 21T, Section 8.2.1, defines the term quote "[E]ssential [P]atent [C]laims" as "Those patent claims, the use of which would necessarily be infringed by the use, sale, offer for sale, or other disposition of a portion of a product in order to be compliant with the required portions of a final approved JEDEC standard."

Netlist's asserted claims of U.S. patent Nos. 10,860,506, the '506 Patent, 10,949,339, the '339 Patent, 11,016,918, the '918 Patent, and 11,232,054, the '054 Patent, are necessarily infringed by the use, sale, offer for sale, or other disposition of a DDR4 LRDIMMs and DDR5 LRDIMMs and RDIMMs that are in compliance with the specifications of JEDEC standards and subsequent revisions identified in Netlist's preliminary

infringement contentions and supplemental infringement contentions, which are incorporated here by reference.

... Thus, Netlist's asserted claims of the four patents are "[E]ssential [P]atent [C]laims" as defined by JEDEC manual No. 21T, Section 8.2.1.

5/30/2023 Bench Trial Tr. at 43:8-44:9.

107. There is no evidence that Netlist ever amended its interrogatory response to indicate that the '339, '918, and '054 patents are not essential.

108. Netlist also testified under oath, through its designated representative on the essentiality of its patents, Scott Milton, that the '918, '054, and '339 patents are indeed standard essential. *Id.* at 52:5-13, 53:5-54:11 (Milton).

109. Netlist's corporate representative, Scott Milton, agreed with the representation Netlist made in its second supplemental interrogatory response from December 19, 2022 that the '339, '918, and '054 patents "are necessarily infringed by the use, sale, offer for sale, or other deposition of a DDR4 LRDIMMs and DDR5 LRDIMMs and RDIMMs that are in compliance with the specification of JEDEC standards and subsequent revisions." *Id.* at 51:10-25 (Milton).

110. As of the close of fact discovery and the deadline to serve opening expert reports on December 22, 2022, Dkt. 109 at 3, Netlist's contention was clear that it believed the asserted claims of the '918, '054, and '339 patents were Essential Patent Claims as defined by JEDEC.

111. When Netlist's expert Dr. Mangione-Smith served his opening report, Mr. McAlexander testified that he believed, based on Dr. Mangione-Smith's report, that Netlist still believed the asserted patents were essential. 05/30/2023 Bench Trial Tr. at 76:16-21, 98:6-11, 111:7-13 (McAlexander).

112. As of the deadline for Mr. McAlexander to serve his rebuttal noninfringement report on January 17, 2023, Dkt. 109 at 3, from Samsung's perspective, Netlist was still



contending the '918, '054, and '339 patents were essential. As of the close of expert discovery on January 30, 2023, Dkt. 109 at 3, the only disputed issues on infringement were the elements Samsung was disputing regarding noninfringement.

113. At the bench trial, Netlist's counsel criticized Mr. McAlexander for not analyzing whether undisputed claim elements were essential to the JEDEC standards in his report. 05/30/2023 Bench Trial Tr. at 98:25-99:21 (McAlexander). However, Netlist was contending that the asserted patents were essential, so, at the time Mr. McAlexander submitted his opening and rebuttal reports, he understood that any undisputed elements in his rebuttal noninfringement report were undisputed as essential. *Id.* at 111:7-13 (McAlexander).

**2. On the Eve of Trial, Netlist Reversed Its Position Regarding the Essentiality of the '918, '054, and '339 Patents To Avoid Confronting Its RAND Obligations and Negative JEDEC Facts**

114. After the close of discovery, Netlist reversed its position with respect to the essentiality of the asserted patents.

115. On March 10, 2023, during the briefing of the parties' motions *in limine*, Netlist stated that it was no longer contending that the asserted patents were essential. Dkt. 379 (Netlist Motions *in Limine*) at 1 ("[N]either side's experts are proving or disputing infringement by claiming the patents are essential to the JEDEC standard"), 11 ("But RAND obligations attach to standard-essential patents ("SEP"), and in this case, no expert contends that any of the Asserted Patents are SEPs.").

116. At the pre-trial conference on March 28 and 29 and April 6, 2023, Netlist's counsel explicitly stated that the '918, '054, and '339 patents were not essential. 05/30/2023 Bench Trial Tr. at 59:10-19 (Milton). The Court took judicial notice, 05/30/2023 Bench Trial Tr. at 169:22-24 (granting Samsung's judicial notice motion), of the following statements made by Netlist's counsel:

MR. SHEASBY: And so the evidence that we will show is that none of these patents are standard essential patents.

Dkt. 518 at 1.

MR. SHEASBY: One of the issues that is -- I think Samsung is attempting to inject into this case is sort of a suggestion in front of the jury that we acted improperly with JEDEC. And obviously since standard essentiality is not in this case, we don't believe that any sort of allegations of impropriety in front of JEDEC have a place in front of this jury.

Dkt. 518 at 1.

These patents aren't standard essential.

Dkt. 518 at 1.

But regardless of whether those two go to the jury on actual notice, we think we -- we intend to present a robust defense to marking because we believe these patents are not standard essential and -- and rely -- and Samsung is using them specifically.

Dkt. 518 at 2.

The second issue is because the Court had concluded yesterday that no one's making a standard essentiality claim for these patents, any discussion of behavior in JEDEC and patenting the technology that was being developed by JEDEC is just an ad hominem because he agrees that JEDEC -- the patents are not standard essential, and our expert agrees that the patents are not standard essential as well. So based on that, I don't see any -- listen. Is it possible to come up with some theoretical way in which the jury could care about the way JEDEC is -- operates and Netlist's role in JEDEC? Yeah. If you stretch things far enough, they can say, Oh, it relates to damages, it relates to infringement. But that is so tenuous in comparison to the toxicity of talking to us about copying from JEDEC based on meetings we attended. There is actually no validity allegation that we copied from JEDEC left in the case. There's no non-infringement allegation based on JEDEC in the case because these patents are standard essential. So a clever lawyer will say there's something that this relates to, but any relationship beyond laches and inequitable conduct is so attenuated that I think on the balance of -- the balancing test it should be stricken.

Dkt. 518 at 2.

MR. SHEASBY: Sure. These patents are not standard essential. There's no obligation to disclose a patent that's not standard essential. There's no allegation from a legal -- in front of the jury that goes to whether we complied with our obligations to JEDEC, because we have no obligations to JEDEC because they're not essential. The MIL should be granted.

Dkt. 518 at 2; *see also* 04/06/2023 PTC Tr. at 83:8-11, 90:5-6.

117. Based on Netlist's sworn statements in its complaints, interrogatory response, and 30(b)(6) deposition testimony, Netlist's statements at the pre-trial conference misrepresented its position regarding essentiality of the '918, '054, and '339 patents to the Court.

**3. Netlist's Misrepresentations To the Court Directly and Necessarily Affected Samsung's Presentation at Trial Due To the Preclusion of RAND and JEDEC Evidence**

118. As a direct result of Netlist's misrepresentations to the Court that none of the patents were standard essential, Samsung was precluded from presenting Netlist's RAND obligations at trial. 03/28/2023 PTC Tr. at 248:6-11 ("With regard to the references to RAND, I'm going to grant that portion of the motion as we've established beyond doubt today there are no standard essential patents at issue in this case. Therefore, any mention of a RAND contractual obligation would violate Rule 403 and be highly confusing and prejudicial with limited, if any, probative value."); 03/29/2023 PTC Tr. at 188:6-8 ("All right. I understand we're down to nine disputed MILs. The one regarding RAND is off the table pursuant to the Court's prior rulings.").

119. As a direct result of Netlist's misrepresentations to the Court that none of the patents were standard essential, the Court also precluded Samsung from presenting JEDEC evidence.

120. Initially, Netlist's misrepresentations left the Court skeptical about the relevance of JEDEC. 03/29/2023 PTC Tr. at 200:16-25 ("I'm granting it so that the Court can be an active gatekeeper on what does and doesn't come in before this jury about JEDEC. I have a fear that

without any constraints there's going to be confusion created, especially in light of the fact that these are not standard essential patents, and there are not obligations under JEDEC because they're not standard essential patents submitted to this standard setting body. But there may be relevant use of JEDEC and there may be implications that relate to other live issues in the case.”).

121. On the first day of trial, after Netlist counsel presented its opening statements contending that Samsung took Netlist's technology, Samsung was precluded from rebutting that argument by explaining that Samsung got the technology from itself and other members of JEDEC through their contributions to the standard. 04/14/2023 Trial Tr. at 159:23-160:8 (“MR. CORDELL: So, Your Honor, we have a serious problem. Mr. Sheasby said at least a half dozen times that Samsung took this technology from Netlist; Samsung was determined to infringe; said Netlist hosted all of the biggest technology companies in the world because they were interested in this technology; and that, critically, Samsung could not go forward without Netlist's advanced technology. That opens the door to the entire JEDEC mess because the reality is Samsung is getting this technology from itself and from JEDEC. And it's in direct response to the repeated statements that Mr. Sheasby said.”), 161:3-5 (“THE COURT: Let me save you both some time. I am not persuaded at this juncture that the door has been opened to JEDEC, and I'm not granting leave to go into it.”). Thus, as a direct result of Netlist's misrepresentation about the essential nature of the '918, '054, and '339 patents that it had been representing to Samsung throughout the case, the Court precluded evidence of Netlist's RAND obligations and Netlist's JEDEC interactions because of the perceived lack of relevance.

122. Netlist's counsel used the rulings precluding RAND and JEDEC issues from trial to enhance its narrative at trial on the issues of infringement, willful infringement, and damages.

Specifically, Netlist's counsel capitalized on Samsung's inability to tell the jury about JEDEC to falsely argue that Samsung was desperate to use Netlist's technology:

The last issue I will discuss is damages. Why was Samsung's behavior this way? Why did Samsung never request a license to our patents? They didn't want to pay a reasonable royalty, but they needed to use the technology. They were desperate for it. And you know why. Because they dominate the market and they need to keep dominating the market.

04/21/2023 Trial Tr. at 1377:14-19 (Sheasby). Netlist also capitalized on Mr. McAlexander's inability to discuss the JEDEC standards, which is sufficient to establish noninfringement of the accused standards-compliant products, to discredit his opinions for allegedly not reviewing source code:

Doctor Mangione-Smith looked at all the detailed source code for the '918 and '054. Mr. McAlexander admitted under oath that Samsung's attorneys did not give him the source code. The source code in schematics are the critical issues that define the operation of these chips.

This is not a referendum on Mr. McAlexander. He is a fine engineer. This is a referendum on Samsung who has hired this man 12 times, and for reasons that are unclear, this time did not show him the source code, and it infects his analysis of every single patent. Out of timber so crooked nothing straight can come.

04/21/2023 Trial Tr. at 1371:19-1372:4 (Sheasby).

**4. But For Netlist's Misrepresentations to the Court, Samsung Would Have Presented Additional Evidence Supporting Its Noninfringement and Damages Defenses**

123. Samsung would have presented additional evidence supporting its noninfringement and damages defenses had Netlist's misrepresentations not led to the preclusion of JEDEC and RAND evidence.

124. But for Netlist's conduct, Mr. Halbert would have testified that Netlist was obligated to license its potentially essential patents on RAND terms. 05/30/2023 Bench Trial Tr. at 14:7-11 (Halbert).

125. But for Netlist's conduct, Mr. Halbert would have testified that Netlist was reading its patents onto parts of the JEDEC standard to which it had not contributed. Specifically, Mr. Halbert would have testified that there were approximately 1,000 technical contributions made for the DDR4 DIMM and DDR5 DIMM standards, of which Samsung made about 220 and Netlist made 0. 05/30/2023 Bench Trial Tr. at 19:12-20:1 (Halbert). About 540 technical contributions were made for the DDR4 data buffer/RCD, of which Samsung made 14 and Netlist made 0. *Id.* at 20:2-6 (Halbert). About 410 technical contributions were made for the DDR5 PMIC, of which Samsung made 89 and Netlist made 0. *Id.* at 20:7-9 (Halbert).

126. But for Netlist's conduct, Mr. McAlexander would have testified that the accused products do not infringe based on the technical operations defined in the JEDEC standards. Specifically, Mr. McAlexander testified that, in his report, he rebutted Dr. Mangione-Smith's infringement opinions based on the JEDEC standards because standards-based evidence is what Dr. Mangione-Smith used to form his infringement opinions. 05/30/2023 Bench Trial Tr. at 98:6-11 (McAlexander). Mr. McAlexander also testified that he wrote his entire report and based his noninfringement analysis on Netlist's representation that the asserted patents were standard essential. *Id.* at 111:7-19 (McAlexander).

127. But for Netlist's conduct, Mr. McAlexander would have testified that Samsung designed its DDR4 and DDR5 products in order to comply with the JEDEC standards—an entirely different reason than the one Netlist advanced, *i.e.*, that Samsung was desperate for Netlist's technology. *Id.* at 95:2-25 (McAlexander).

128. But for Netlist's conduct, Mr. McAlexander would have testified that Samsung was not desperate for Netlist's technology because Samsung was an active contributor to JEDEC whereas Netlist made no technical contributions. *Id.*

129. But for Netlist's conduct, Mr. McAlexander would have rebutted Netlist's assertion that his analysis was "crooked" for allegedly not reviewing source code by explaining that the technical descriptions in the JEDEC DDR4 and DDR5 standards are sufficient for purposes of analyzing infringement of standard-compliant products. *Id.* at 96:1-19 (McAlexander).

130. But for Netlist's conduct, the jury would have heard testimony from fact witnesses confirming that the operation of the accused products was designed to follow the JEDEC standards, not because Samsung was desperate to use Netlist's technology or needed access to Netlist's patents. Hyun-Joong Kim, a Samsung customer engineer, would have testified that Samsung designs its DDR5 products with a PMIC to comply with the JEDEC standards. 05/30/2023 Bench Trial Tr. at 35:18-22, 36:21-23 (Kim). Bruce Lo, a Renesas design engineer, would have testified that the PMIC in the accused DDR5 products is fully compliant with JEDEC. 05/30/2023 Bench Trial Tr. at 39:1:12, 40:1-6 (Lo). Garrett Davey, a Renesas senior manager, would have testified that the data buffers used in the accused DDR4 products are entirely compliant with JEDEC. 05/30/2023 Bench Trial Tr. at 42:10-17 (Davey).

131. But for Netlist's conduct, Mr. Meyer would have testified that Netlist had RAND obligations for the '918, '054, and '339 patents, and demonstrated that Netlist's damages demand, based on Netlist's prior license, was not RAND. 5/30/2023 Bench Trial Tr. at 113:8-17 (Meyer). Mr. Meyer relied on Netlist's representations in forming his damages opinions and preparing for trial. *Id.* at 115:7-9 (Meyer).

132. But for Netlist's conduct, Mr. Meyer would have testified that Netlist represented in this case that it would license its patents, including the '918, '054, and '339 patents on RAND terms and conditions. *Id.* at 114:20-25 (Meyer).

133. But for Netlist's conduct, Mr. Meyer would have testified that Netlist contended that its damages claim in this case would be consistent with RAND terms and conditions. *Id.* at 115:1-6 (Meyer).

134. But for Netlist's conduct, Mr. Meyer would have testified that Netlist's damages demand was not RAND by demonstrating that Netlist's market comparable transaction, its license with SK hynix, should be considered in determining whether Netlist's proposed damages demand was consistent with its RAND obligations. *Id.* at 115:10-116:8 (Meyer).

135. But for Netlist's conduct, Mr. Meyer would have rebutted Mr. Kennedy's DDR4 damages demand and shown its discriminatory nature by demonstrating that Mr. Kennedy's DDR4 per unit rate at trial was approximately \$72, which is 65 times the \$1.10 effective per unit rate that Netlist agreed to with SK hynix. *Id.* at 117:16-23 (Meyer).

136. But for Netlist's conduct, Mr. Meyer would have rebutted Mr. Kennedy's DDR5 damages demand and shown its discriminatory nature by demonstrating that Mr. Kennedy's DDR5 per unit rate at trial was approximately \$21, which is 19 times the \$1.10 effective per unit rate that Netlist agreed to with SK hynix. *Id.* at 117:16-23 (Meyer).

137. But for Netlist's conduct, Mr. Meyer would have testified that Mr. Kennedy's DDR4 and DDR5 per unit rates were not RAND rates. *Id.* at 117:24-118:2 (Meyer).

138. But for Netlist's conduct, Mr. Meyer would have testified that in a communication to Samsung, Netlist adopted a study conducted by Mr. Gregory Sidak that the FRAND rate for DDR4 LRDIMMs would be any amount up to \$34.27. *Id.* at 118:3-12 (Meyer); DTX-32 at 70.

139. But for Netlist's conduct, Mr. Meyer would have testified that the Sidak article showed that the bargaining range for a reasonable royalty of zero up to \$34.27 for Netlist's entire



portfolio of standard essential DDR4 LRDIMM patents was provided to Samsung by Netlist. 05/30/2023 Bench Trial Tr. at 118:15-119:3 (Meyer); DTX-32 at 48, 63, 70.

140. But for Netlist's conduct, Mr. Meyer would have testified that Mr. Kennedy's per unit rates that formed the basis of Netlist's damages demand were unreasonable, and discriminatory towards Samsung. 05/30/2023 Bench Trial Tr. at 119:4-16 (Meyer).

141. Netlist's misconduct infected the jury award at trial given that Mr. Meyer concluded that the jury-awarded rates for DDR4 and DDR5 were 75% of Mr. Kennedy's rates, and are still 50 times and 14 times higher respectively than the effective \$1.10 per unit rate Netlist agreed to with SK hynix. *Id.* at 119:17-24 (Meyer). This difference is further evidence that the damages award was unreasonable and discriminatory based on the analysis of Mr. Kennedy.

#### **5. Samsung's Experts Relied on Netlist's Representation When Formulating Their Opinions**

142. At the bench trial, Netlist's counsel attempted to attack Samsung's expert for not establishing standard essentiality. 05/30/2023 Bench Trial Tr. at 98:25-99:17 (McAlexander).

143. However, at the time of the expert reports, Netlist had affirmatively represented in its interrogatory response that the '339, '918, and '054 patents were essential. 05/30/2023 Bench Trial Tr. at 43:8-44:9 (Milton).

144. Samsung's experts drafted their reports based on Netlist's operative interrogatory response asserting that the '918, '054, and '339 patents are essential. 05/30/2023 Bench Trial Tr. at 98:6-11, 111:7-19 (McAlexander); 114:20-115:9 (Meyer). Indeed, there is no evidence that Netlist ever amended its interrogatory response to indicate that the '918, '054, and '339 patents are not essential.

145. Samsung's experts did not dispute that the patents were standard essential under Netlist's theory of infringement. Instead, Samsung's experts relied on Netlist's representations regarding standard essentiality of the '918, '054, and '339 patents in formulating their opinions. Mr. McAlexander testified that, in his report, he rebutted Dr. Mangione-Smith's infringement opinions based on the JEDEC standards because standards-based evidence is what Dr. Mangione-Smith used to form his infringement opinions. 05/30/2023 Bench Trial Tr. at 98:6-11 (McAlexander). Mr. McAlexander also testified that he wrote his entire report and based his noninfringement analysis on Netlist's representation that the asserted patents were standard essential. *Id.* at 111:7-19 (McAlexander).

146. Similarly, Mr. Meyer relied on Netlist's representation that it would license its patents, including the '918, '054, and '339 patents on RAND terms and conditions. 05/30/2023 Bench Trial Tr. at 114:20-25 (Meyer).

147. Only after expert discovery, after Netlist changed its position on whether the patents were standard essential, did Netlist then claim that Samsung was required to prove standard essentiality in its expert reports. Netlist's changed position materially impacted the expert discovery process to Samsung's substantial detriment.

## **6. Netlist Has No Basis for Its Change of Position**

148. Netlist had no basis to change its position on the essentiality of the '918, '054, and '339 patents.

149. At trial, Netlist's counsel argued that Netlist based its change of position with respect to the '339 patent because the standard does not require tri-state buffers, but Mr. McAlexander testified that tri-state buffers exist in the JEDEC standard. 05/30/2023 Bench Trial Tr. at 100:17-21 (McAlexander). Mr. McAlexander testified that the same data buffer logic diagram on which Netlist relied at the jury trial from the Renesas datasheet actually came from

the JEDEC standard. *Id.* at 94:11-95:1; *compare* JTX0057 (JEDEC standard) at 111, *with* JTX0020 (Renesas datasheet) at 1. Mr. Davey, from Renesas, testified that that logic diagram from the JEDEC standard included [REDACTED]. 04/18/2023 Trial Tr. at 663:9-14, 664:5-13 (Davey). Additionally, that data buffer logic diagram is not marked as an example, not marked as non-normative, and not otherwise indicated as not being required by the JEDEC standard. JTX0057 at 111.

150. At trial, Netlist's counsel argued that Netlist based its change of position with respect to the '918 and '054 patents because Samsung engineer, Mr. Kyungsoo Park, testified that Samsung does not use a low dropout regulator (LDO) for a voltage called VBias. 05/30/2023 Bench Trial Tr. at 130:25–132:3 (Park). Mr. Park's testimony is irrelevant to standard essentiality of the '918 and '054 patents because Dr. Mangione-Smith relied on a different LDO for receiving a different voltage called VIN\_BULK found in both the JEDEC standard and the accused DDR5 products to render his infringement opinion. 04/17/2023 Trial Tr. at 335:4-25 (Mangione-Smith).

### **III. PROPOSED CONCLUSIONS OF LAW**

#### **A. General Proposed Conclusions of Law**

1. “In an action tried on the facts without a jury . . . , the court must find the facts specially and state its conclusions of law separately.” Fed. R. Civ. P. 52(a)(1); *Personalized Media Commn's, LLC v. Apple, Inc.*, 552 F. Supp. 3d 664, 683 (E.D. Tex. 2021) (Court's “CL 1 finding”). “If a party has been fully heard on an issue during a nonjury trial and the court finds against the party on that issue, the court may enter judgment against the party on a claim or defense that, under the controlling law, can be maintained or defeated only with a favorable finding on that issue.” Fed. R. Civ. P. 52(c); *PMC*, 552 F. Supp. 3d at 683 (Court's “CL 1” finding).

2. The purpose of these findings is to “afford[ ] . . . a clear understanding of the ground or basis of the decision of the trial court.” *S. S. Silberblatt, Inc. v. U.S. for Use & Benefit of Lambert Corp.*, 353 F.2d 545, 549 (5th Cir. 1965) (internal quotation marks omitted); *see also Schlesinger v. Herzog*, 2 F.3d 135, 139 (5th Cir. 1993) (explaining that trial courts need not “recite every piece of evidence” or “sort through the testimony of . . . dozen[s] [of] witnesses”). *PMC*, 552 F. Supp. 3d at 684 (Court’s “CL 2” finding).

3. In making a particular finding, the district court “does not . . . draw any inferences in favor of the non-moving party and . . . [instead] make[s] a determination in accordance with its own view of the evidence.” *Fairchild v. All Am. Check Cashing, Inc.*, 815 F.3d 959, 964 n.1 (5th Cir. 2016) (internal quotation marks omitted). However, a district court still must arrive at each of its factual determinations based on the applicable burden of proof. *In re Medrano*, 956 F.2d 101, 102 (5th Cir. 1992) (reversing the district court because it applied the preponderance of the evidence standard rather than the clear and convincing standard in making its factual determinations under Rule 52); *see also PMC*, 552 F. Supp. 3d at 684 (Court’s “CL 3” finding).

## **B. Standards Estoppel**

### **1. Legal Standard**

4. Equitable estoppel is a complete defense to patent infringement. *A.C. Aukerman Co. v. R.L. Chaides Constr. Co.*, 960 F.2d 1020, 1041 (Fed. Cir. 1992). Equitable estoppel bars a patentee’s right to relief where: “(1) the patentee, through misleading conduct (or silence), leads the alleged infringer to reasonably infer that the patentee does not intend to enforce its patent against the alleged infringer; (2) the alleged infringer relies on that conduct; and (3) the alleged infringer will be materially prejudiced if the patentee is allowed to proceed with its claim.” *Radio Sys. Corp. v. Lalor*, 709 F.3d 1124, 1130 (Fed. Cir. 2013). In the context of SSOs, the first two prongs are met where first “the patentee had a duty of disclosure to the standard setting

organization” and second “the patentee breached that duty.” *Hynix Semiconductor Inc. v. Rambus Inc.*, 645 F.3d 1336, 1348 (Fed. Cir. 2011); *see also Barnes & Noble, Inc. v. LSI Corp.*, 849 F. Supp. 2d 925, 939 (N.D. Cal. 2012) (“[I]t is reasonable to infer reliance by the IEEE based on the IEEE’s policies requiring disclosure and requiring it to obtain assurances regarding any patents relevant to proposed standards[.]”); *Momenta Pharms., Inc. v. Amphastar Pharms., Inc.*, 255 F. Supp. 3d 279, 289 (D. Mass. 2017).

**2. The Court Concludes That Netlist Had a Duty of Disclosure to JEDEC**

5. Netlist owed a duty of disclosure to JEDEC such that it was required to disclose the ’918 and ’054 patent family to JEDEC for the DDR5 JEDEC standards.

6. As a member of JEDEC, Netlist is held to the JEDEC Patent Policy set forth in the JM21 JEDEC Manual of Organization and Procedure. *See* Findings of Fact at ¶¶ 6-11. The Patent Policy includes the duty to disclose “Potentially Essential Patents,” which are those patents that are “reasonably believed by a subject person to contain one or more patent claims.” Findings of Fact at ¶¶ 13-14. Because Netlist held a reasonable belief that the ’918 and ’054 patents contained one or more claims that are essential to the DDR5 standards—a belief Netlist’s JEDEC representatives knew, through actual knowledge or through willful blindness—Netlist had a duty to disclose the ’918 and ’054 patents to JEDEC for the relevant DDR5 standards. *See* Findings of Fact at ¶¶ 13-15, 19-21, 31-52.

7. Netlist attended JEDEC meetings to monitor the development of the DDR5 standards, including for the power management integrated circuit (PMIC) component. Findings of Fact at ¶¶ 6-10, 39, 41-43. Following its attendance at the JEDEC DDR5 meetings, Netlist filed the ’918 and ’054 patent applications with claims that it has asserted are essential to the DDR5 standards. Findings of Fact at ¶¶ 2-4, 31-37, 41-43, 50-52. Netlist’s belief that the ’918

and '054 patents and their applications have claims that are essential to the DDR5 standards, and its representatives' knowledge thereof, triggered its duty to disclose those patents to JEDEC for the DDR5 standards.

8. Because Netlist's disclosure obligation is based on its own reasonable belief that the '918 and '054 patents are essential to the DDR5 standards, it is immaterial that Samsung disputes the standard essentiality of those patents or that Netlist's infringement expert Dr. Mangione-Smith elected not to rely on standards documents to prove infringement in this case. Netlist's duty of disclosure is its own, and it cannot be relieved from that duty based on the beliefs of third parties, including Samsung.<sup>3</sup>

9. Netlist alleges that it had no duty to disclose the '918 and '054 patents because (1) "[t]here is no evidence that Netlist's sole JEDEC representative during the relevant time period, Mario Martinez, had any knowledge of the specification of the '918 and '054 patents," and (2) "the claims in these patents were not filed until after JEDEC adopted and published the PMIC standard." Dkt. 511 at 5. Both arguments are unavailing.

10. The evidence shows that Netlist was represented at JEDEC by several individuals following its return in 2018, including Mario Martinez, Jordan Horwich, and Noel Whitley. *See* Findings of Fact at ¶¶ 7, 38-40, 46. These representatives were tasked with reporting JEDEC's activities to Netlist's other technical and executive team members, who would in turn instruct

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<sup>3</sup> Netlist cited to the testimony of Samsung's JEDEC representative Mr. Hyun-Joong Kim to suggest that JEDEC's patent disclosures are merely recommended rather than a condition of membership. But Samsung is not required to conduct a search for Potentially Essential Patents. DTX-07 at 33. Indeed, the testimony from Mr. Kim on which Netlist relies never mentions standard essentiality, instead referring only to whether Samsung is "required to declare its patents that making of the voltage regulation onboard feature [sic]." Dkt. 511-4 at 49:23-50:2. In any event, Mr. Kim's interpretation of the JEDEC Patent Policy is immaterial to whether Netlist had a duty to disclose its patents.

Netlist's representatives of disclosures and other actions to take at JEDEC. Findings of Fact at ¶¶ 40, 43-44, 51.

11. Netlist's belief that the '918 and '054 patents were essential to the DDR5 standards is precisely the type of information that Netlist's JEDEC representatives would have learned through its discussions with the technical and executive teams, providing the requisite personal knowledge. Findings of Fact at ¶¶ 40, 43, 50. Furthermore, given the public nature of Netlist's litigation against Samsung and Netlist's affirmative efforts to publicize the litigation, Netlist's JEDEC representatives would have had to take deliberate action to avoid learning of Netlist's belief, stated numerous times during the litigation, that the '918 and '054 patents were Potentially Essential Patents as to the DDR5 standards. Findings of Fact at ¶¶ 45-46; *see generally id.* at ¶¶ 31-52.

12. The Court, therefore, concludes that it is only through willful blindness that Netlist's JEDEC representatives could have avoided learning of the '918 and '054 patents and Netlist's belief that those patents were essential to the DDR5 standards. *See Global-Tech Appliances, Inc. v. SEB S.A.*, 563 U.S. 754, 766 (2011) (explaining "persons who know enough to blind themselves to direct proof of critical facts in effect have actual knowledge of those facts" and are "just as culpable as those who have actual knowledge"); *Motiva Patents, LLC v. Sony Corp.*, 408 F. Supp. 3d 819, 828 (E.D. Tex. 2019) ("The Supreme Court has repeatedly confirmed that willful blindness may supply the requisite knowledge" in the absence of actual knowledge). In other words, Netlist cannot escape its JEDEC disclosure and RAND obligations by intentionally withholding information about a Potentially Essential Patent from its JEDEC representative(s). *See* 05/30/2023 Bench Trial Tr. at 144:22-145:25 (Gillingham) (characterizing such a practice as "somewhat underhanded").

13. Moreover, the JEDEC Patent Policy does not support Netlist's assertion that the timing of its patent filings or of JEDEC's issuance of the DDR5 standards relieve Netlist of its disclosure duty for the '918 and '054 patents. Nothing in the Patent Policy suggests that a company may forgo disclosure of Potentially Essential Patents of which it is aware based solely on the timing of an application's filing or patent's issuance, or on the issuance of a given standard. *See* DTX-08 at 33-34. To the contrary, the JEDEC Patent Policy expressly provides that the JEDEC Patent Policy, including its disclosure provisions, "applies with equal force to situations involving: a) the discovery of patents that may be required for use of a standard subsequent to its adoption, and b) the initial issuance of a patent after the adoption of a standard." *Id.* at 49.

14. Although Netlist cites to the Patent Policy's requirement that "disclosures or notices of known Potentially Essential Patents shall be delivered to the JEDEC Legal Department within thirty (30) calendar days of Approval by the Committee in order to be effective," that provision relates solely to the *delivery* of disclosures and forms to the JEDEC Legal Department. 05/30/2023 Bench Trial Tr. at 146:11-20 (Gillingham). It does not, as Netlist asserts, serve as a time bar that allows a member to circumvent its disclosure obligations simply by waiting until after a standard is approved by JEDEC.

15. Additionally, while the first revision of the DDR5 PMIC standard predates the filing of the '918 and '054 patent applications, other DDR5 standards practiced by the accused products did not issue until well after the filing dates of both patent applications, and JEDEC continues to issue revisions to the DDR5 PMIC standard to this day. Findings of Fact at ¶ 41. The '918 and '054 patent family was pending well before voting or adoption of the DDR5 PMIC standards. For example, Netlist amended the claims of the '416 parent application to the '918



and '054 patents following Netlist's attendance in the JEDEC DDR5 meetings in 2018. Findings of Fact at ¶ 81; *see generally id.* at ¶¶ 69, 73, 76-82.

**3. The Court Concludes That Netlist Breached Its Duty of Disclosure to JEDEC**

16. Netlist breached its duty of disclosure to JEDEC by failing to disclose the '918 and '054 patents or any related patent or application for the DDR5 standards. Netlist has never disclosed the '918 or '054 patents or their applications to JEDEC. Findings of Fact at ¶ 26. Nor has Netlist ever disclosed any patent or application related to the '918 and '054 patents to JEDEC for the DDR5 standards, despite Netlist's belief that those patents are essential to the DDR5 standards. Findings of Fact at ¶¶ 27-37. Netlist's failures constitute a breach of its disclosure duty under the JEDEC Patent Policy.

17. Although Netlist does not dispute that it did not disclose the '918 and '054 patents for DDR5, it nevertheless contends that it satisfied any duty of disclosure through its disclosure of the related '831 and '833 patents. *See* Dkt. 511 at 5. Netlist disclosed the '831 and '833 patents in August 2018 for only "JC-40 Item Number 314 'Proposed DDR4 RCD02 LCOM Protocol and RCD Definitions'." Findings of Fact at ¶¶ 27-30. Notably absent from this disclosure is any mention or suggestion that Netlist believed those patents are also relevant to DDR5. While the JEDEC Patent Policy provides that "[d]isclosure of a patent is deemed to include all patents claiming priority of a single filing," the Patent Policy does not indicate that a single patent disclosure is effective for all JEDEC standards or for any number of JEDEC standards that are left unidentified in the disclosure. Findings of Fact at ¶¶ 16, 19-21. To construe JEDEC's Patent Policy otherwise would permit members to conceal the standards to which they believe a patent is essential by identifying different standards or only a subset of the applicable standards. *See* Findings of Fact at ¶¶ 14-21; *see also id.* at ¶ 43. Such an

interpretation would frustrate the disclosure process entirely. *See Barnes & Noble*, 849 F. Supp. 2d at 940 (“Indeed, the fact that letters of assurance were allegedly required from, and provided by, patentees in which patentees committed to licensing any relevant patents on a FRAND basis necessarily anticipates reliance on those commitments. Otherwise, the process of acquiring [letters of assurance] would be a meaningless exercise.”).

18. Netlist’s position that its disclosure for “JC-40 Item Number 314 ‘Proposed DDR4 RCD02 LCOM Protocol and RCD Definitions’” is sufficient because the DDR5 standards are a continuation of the DDR4 standards also lacks merit. The PMIC component on which Netlist bases its infringement claims for the ’918 and ’054 patents did not exist for DDR4, and DDR4 is a distinct technology from DDR5. Findings of Fact at ¶¶ 30, 41. Thus, DDR5 is not a continuation of DDR4. Findings of Fact at ¶¶ 30, 41. Additionally, the only reference to “continuation[s] of a prior Standard” in the JEDEC Patent Policy appear in Section 8.2.4 of the Patent Policy directed to a member’s “RAND Patent Licensing Commitment,” not in Section 8.2.3 directed to obligations for the “Disclosure of Potentially Essential Patents.” *See* 05/30/2023 Bench Trial Tr. at 149:16-25 (Gillingham) (confirming that the requirement for disclosure of essential patents and the reference to a “continuation of a prior standard” are in “different section[s]” of the Patent Policy). Section 8.2.4 indicates that questions of whether a given standard is “new” or a “continuation” is relevant to only whether a party has a RAND obligation after terminating its membership in JEDEC, and is a question for the JEDEC Legal Department. DTX-08 at 34. Netlist does not contend (and offered no evidence) that JEDEC has addressed whether DDR5 standards, including the DDR5 PMIC standard, are a “continuation” of any prior standard, and such a determination by the JEDEC Legal Department would have no

[REDACTED]

impact on Netlist's obligation to disclose the '918 and '054 patents for standards to which it believed they were essential.

19. Netlist's disclosure of the '831 and '833 patents for Item Number 314 directed to the DDR4 RCD was insufficient to effect disclosure for the DDR5 standards, including the DDR5 PMIC standard. Findings of Fact at ¶¶ 27-30, 41. Netlist reasons that Samsung and other JEDEC members should have known of the '918 and '054 patents' relevance to the DDR5 standards because JEDEC Item Number 314.22 was associated with [REDACTED]

[REDACTED]

[REDACTED] Dkt. 511 at 6-7 (citing JTX0069 at 13). Such a connection is far too tenuous to effect disclosure of the '918 and '054 patents for DDR5.

20. Netlist also seeks to isolate the mention of JEDEC committee "JC-40" in the disclosure of the '831 and '833 patents to JEDEC. Dkt. 511 at 5-6. Although the record shows that JEDEC member companies have broadly disclosed their patents to a particular JEDEC committee or product line (*e.g.*, DDR4), that is not what Netlist did. *See* 05/30/2023 Bench Trial Tr. at 148:3-7 (Gillingham); Findings of Fact at ¶¶ 27-30, 50. Instead, Netlist indicated its belief that the '831 and '833 patents (and related patents) are potentially essential for only the DDR4 registering clock driver (RCD) component, and specifically for the technologies addressed in JEDEC Item Number 314. Findings of Fact at ¶¶ 27-30, 50. Because Netlist believed that its patents had broader applicability to the JEDEC standards, it was required to disclose those beliefs to JEDEC. It did not. Netlist's disclosure of the '831 and '833 patents for JEDEC Item Number 314, therefore, did not effect disclosure of the '918 and '054 patents for DDR5. As

such, Netlist breached its duty of disclosure to JEDEC for the '918 and '054 patents as to the DDR5 standards.

**4. The Court Concludes That Samsung Relied to Its Detriment on Netlist's Conduct**

21. Samsung established that it, like other JEDEC members, relied on Netlist's silence to its detriment, as Netlist uses Samsung's DDR5 compliance to allege infringement and extract royalties from Samsung. Findings of Fact at ¶¶ 53-59. Under the JEDEC Patent Policy, if a company has Essential Patents but is unwilling to license its Essential Patent Claims on RAND terms to the industry, JEDEC is required to investigate reasonable workarounds to resolve the conflict. Findings of Fact at ¶¶ 23-24, 53-54. Thus, had Netlist disclosed the '918 and '054 patents and its unwillingness to license those patents on RAND terms, JEDEC would have been required to consider workarounds to Netlist's patents. Instead, Netlist remained silent and permitted JEDEC to finalize the DDR5 standards, including those for the DDR5 PMIC and DIMM designs at issue in this case. Findings of Fact at ¶¶ 26-30, 41, 53-59. As a result, JEDEC formally adopted the DDR5 standards without considering the numerous alternatives that would have avoided Netlist's '918 and '054 patents. Findings of Fact at ¶¶ 41, 53-54; *see High Point SARL v. Sprint Nextel Corp.*, 817 F.3d 1325, 1331 (Fed. Cir. 2016) (“[W]e agree with the district court that Defendants detrimentally relied on the conduct of High Point's predecessors. . . . Sprint had several options when building its network and . . . would have acted differently if the threat of litigation was a possibility.”); *Raber v. Pittway Corp.*, No. C 92-2581 FMS, 1994 WL 374542, at \*6 (N.D. Cal. July 11, 1994) (“Continued investment and stepped-up sales of the infringing device when a noninfringing alternative was available demonstrates Pittway's reliance on the patentee's inaction.”).

22. It is immaterial whether Samsung personally “checked JEDEC disclosures before launching its design” for DDR5, or that “Netlist disclosed the parents of the ’918/’054 patents to Samsung” for hybrid memory products. Dkt. 511 at 7; PX0621 at 28; PX0464 at 43, 46, 50; *see also* 04/17/2023 Trial Tr. at 266:12-269:6 (Milton). The evidence of record establishes that, if Netlist had disclosed the ’918 and ’054 patents or their relatives for the DDR5 standards, other JEDEC members including Samsung would have been notified of those patents, and JEDEC would have been required to consider reasonable alternatives to those patents for the DDR5 standards. *See* 05/30/2023 Bench Trial Tr. at 14:2-6 (Halbert), 14:22-15:5 (Halbert).

23. Moreover, as set forth in the foregoing findings of fact, Samsung designs standard-compliant memory products. Findings of Fact at ¶¶ 55-59. Thus, Samsung relied on the JEDEC process for the industry’s development of the DDR5 standards. *See Barnes & Noble*, 849 F. Supp. 2d at 940 (“Plaintiffs allege that ETSI/3GPP also require disclosure, suggesting that the information provided—or not provided—by SSO members during the standards-setting process bears on the SSO’s decision-making process. . . . Plaintiffs allege that they designed their products to comply with the relevant standards . . . [and] the allegation that they adopted the standards in question is sufficient to infer reliance on the propriety of the standards-setting process itself.”); *Momenta Pharms.*, 255 F. Supp. 3d at 289 (determining that “a factfinder could conclude that Momenta’s failure to disclose the patent to the [United States Pharmacopeia (USP)] was misleading and resulted in a reasonable inference of non-enforcement” where Defendant “Amphastar . . . reasonably believed it could use and rely on the method published by the USP”).<sup>4</sup>

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<sup>4</sup> *See also H.G. Shopping Ctrs., L.P. v. Birney*, No. H-99-0622, 2000 WL 33538621, at \*10 (S.D. Tex. Nov. 29, 2000) (finding reliance where defendants “expended money to advertise,

24. Because the industry has adopted the JEDEC DDR5 standards, the design of Samsung's DDR5 products must continue to conform to the DDR5 standard. *Lucas Aero., Ltd. v. Unison Indus., L.P.*, 899 F. Supp. 1268, 1294 (D. Del. 1995) (noting that reliance and prejudice can be found in the context of SSOs "because once the industry standard was established, all members of the industry had to conform their purchases to that standard"). Thus, the Court finds that Samsung has relied to its detriment on the non-disclosure of Netlist's patents as essential to the DDR5 standards with which its products are designed to comply.

### **5. The Court Concludes That Samsung Suffered Prejudice by Relying on Netlist's Silence**

25. Samsung established that JEDEC proceeded to develop and adopt the DDR5 standards without knowledge of the '918 and '054 patents or Netlist's belief that those patents are necessarily infringed by products complying with those standards. Findings of Fact at ¶¶ 26-54. Samsung has since developed and sold its DDR5 DIMM products that comply with those standards. Findings of Fact at ¶¶ 55-59. As a result, the Court finds that Samsung is materially prejudiced by Netlist's breach of its disclosure duty to JEDEC.

26. Specifically, Samsung faces severe economic prejudice as a result of Netlist's breach, including through Samsung's development of products that comply with the DDR5 industry standards developed by the JEDEC SSO. *See Aukerman*, 960 F.2d at 1043 (material prejudice may be economic or evidentiary). As set forth above, had JEDEC been informed of Netlist's belief that its patents were necessary to the DDR5 standards, including the standardized

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develop its reputation, and maintain the property"); *Stewart & Stevenson Servs., Inc. v. Serv-Tech, Inc.*, 794 F. Supp. 202, 206 (S.D. Tex. 1992) (activities promoting the technology, such as business plans and capital investments, show reliance); *Magna Mirrors of Am. v. 3M Co.*, No. 07-10688, 2013 WL 2940916, at \*10 (E.D. Mich. June 14 2013) ("The mere fact that 3M continued to sell and invest in its SBTs establishes reliance." (citing *Stryker Corp. v. Zimmer, Inc.*, 741 F. Supp. 409, 514 (D.N.J. 1990) (finding that continued capital investments in a business area is sufficient to establish reliance and prejudice))).

design of the DDR5 PMIC component that Netlist relies on for its infringement allegations, JEDEC was obligated to pursue reasonable workarounds to Netlist's patents. Findings of Fact at ¶¶ 23-24, 53-54. Netlist seeks to benefit from its breach of JEDEC's disclosure duty by obtaining royalties well above those paid by similarly situated members in the industry. *See* 05/30/2023 Bench Trial Tr. at 115:3-116:15 (Meyer), 117:11-119:24 (Meyer). Moreover, with the DDR5 industry standards now solidified, Samsung has no choice but to continue to produce its DDR5 products in compliance with those standards.

27. Therefore, Netlist's actions resulted in material prejudice to Samsung. *See Radio Sys.*, 709 F.3d at 1130 (affirming prejudice based on "investment in new products"); *Momenta Pharms., Inc. v. Amphastar Pharms., Inc.*, 298 F. Supp. 3d 258, 270 (D. Mass. 2018) ("Amphastar, relying on its ability to use methods that comply with USP <207>, substantially invested in developing its capacity to manufacture, produce and market enoxaparin. Therefore, it has shown that it would be economically prejudiced if Momenta were permitted to enforce the patent against it."); *Magna Mirrors*, 2013 WL 2940916, at \*10 ("Making heavy capital investment and increasing production can constitute prejudice." (quoting *Adelberg Labs., Inc. v. Miles, Inc.*, 921 F.2d 1267, 1272 (Fed. Cir. 1990))).

## **C. Prosecution Laches**

### **1. Legal Standard**

28. "Prosecution laches is an equitable affirmative defense to patent infringement." *PMC*, 552 F. Supp. 3d at 684 (Court's "CL 4" finding citing *Hyatt v. Hirshfeld*, 998 F.3d 1347, 1359-60 (Fed. Cir. 2021) and *Cancer Rsch. Tech. Ltd. v. Barr Labs., Inc.*, 625 F.3d 724, 729 (Fed. Cir. 2010)). "If found, prosecution laches may 'render a patent unenforceable when it has issued only after an unreasonable and unexplained delay in prosecution that constitutes an

egregious misuse of the statutory patent system under a totality of the circumstances.” *PMC*, 552 F. Supp. 3d at 684 (Court’s “CL 4” finding quoting *Hyatt*, 998 F.3d at 1360).

29. “[T]he doctrine of prosecution laches places an additional, equitable restriction on patent prosecution conduct beyond those imposed by statute or PTO regulation.” *PMC*, 552 F. Supp. 3d at 684 (Court’s “CL 5” finding quoting *Hyatt*, 998 F.3d at 1366). “An applicant must therefore not only comply with the statutory requirements and PTO regulations but must also prosecute its applications in an equitable way that avoids unreasonable, unexplained delay that prejudices others.” *PMC*, 552 F. Supp. 3d at 684 (Court’s “CL 5” finding quoting *Hyatt*, 998 F.3d at 1366).

30. “Prosecution laches as a defense to infringement requires proof of two elements: (a) that the patentee’s delay in prosecution was unreasonable and inexcusable under the totality of the circumstances; and (b) that the accused infringer or the public suffered prejudice attributable to the delay.” *PMC*, 552 F. Supp. 3d at 684 (Court’s “CL 6” finding citing *Hyatt*, 998 F.3d at 1362 and *Cancer Rsch.*, 625 F.3d at 728–29).

31. “To establish prejudice, an accused infringer must show evidence of intervening rights, in the sense that ‘either the accused infringer or others invested in, worked on, or used the claimed technology during the period of delay.’” *PMC*, 552 F. Supp. 3d at 684 (Court’s “CL 7” finding quoting *Cancer Rsch.*, 625 F.3d at 731).

32. This Court has previously applied the clear and convincing standard to the prosecution laches defense (*PMC*, 552 F. Supp. 3d at 684), but the burden of proving the prosecution laches defense should be consistent with the preponderance of the evidence burden required to prove laches in a patent infringement suit. *Gasser Chair Co., Inc. v. Infanti Chair Mfg. Corp.*, 60 F.3d 770, 773 (Fed. Cir. 1995). Nevertheless, Samsung has met its burden under



both standards of showing that Netlist's delay in filing the claims of the '918 and '054 patents was unreasonable and inexcusable under the totality of the circumstances and that Samsung and the public suffered prejudice attributable to the delay.

33. “[A]n unreasonable and unexplained prosecution delay of six years or more raises a presumption of prejudice, including intervening rights.” *Hyatt*, 998 F.3d at 1370. This Court has previously held that this presumption is limited to the context of a § 145 action (*PMC*, 552 F. Supp. 3d at 685), but the Federal Circuit in *Hyatt* did not limit the presumption to a § 145 action. *Hyatt*, 998 F.3d at 1370. Rather, the Federal Circuit stated that § 145 actions also require proof of intervening rights to establish prejudice, but its statement regarding the presumption that an unexplained prosecution delay of six years or more raises a presumption of prejudice was separate and distinct and was not limited to a § 145 action. *Id.* (“[I]n the context of a § 145 action, the PTO must generally prove intervening rights to establish prejudice, ***but an unreasonable and unexplained prosecution delay of six years or more raises a presumption of prejudice, including intervening rights.***” (emphasis added)). In fact, the Federal Circuit explained that “[i]n the context of laches, we have held that a delay of more than six years raises a presumption that it is unreasonable, inexcusable, and prejudicial,” and that the “presumption shifts the burden to the patentee to prove that either the patentee’s delay was reasonable or excusable under the circumstances or the defendant suffered neither economic nor evidentiary prejudice.” *Hyatt*, 998 F.3d at 1369-1370 (quotations omitted). The Federal Circuit also explained that “[p]resumptions of fact such as this have been created to assist in certain circumstances where direct proof of a matter is for one reason or another rendered difficult.” *Id.* at 1370 (quotations omitted). Still, regardless of whether the presumption applies to a

prosecution laches defense, Samsung has met its burden of showing that both elements of prosecution laches are satisfied.

## **2. Netlist Engaged in an Unreasonable and Unexplained Delay**

34. “Whether an applicant’s delay is unreasonable is a fact-intensive inquiry that depends on the specific circumstances.” *PMC*, 552 F. Supp. 3d at 684 (Court’s “CL 11” finding citing *Hyatt*, 998 F.3d at 1366-67). “Determinations of unreasonable delay are not limited to the specific patent application in question; rather, ‘an examination of the totality of the circumstances, including the prosecution history of all of a series of related patents and overall delay in issuing claims, may trigger laches.’” *PMC*, 552 F. Supp. 3d at 684 (Court’s “CL 11” finding quoting *Hyatt*, 998 F.3d at 1362 and citing *Symbol Techs., Inc. v. Lemelson Med., Educ. & Research Found., LP*, 422 F.3d 1378, 1385 (Fed. Cir. 2005) (“*Symbol IP*”).

35. “There are no ‘firm guidelines’ for when laches is triggered, and the determination is left to the district court’s consideration as a matter of equity.” *PMC*, 552 F. Supp. 3d at 684 (Court’s “CL 13” finding citing *Symbol II*, 422 F.3d at 1385). “Yet, the Federal Circuit has found instructive two prior Supreme Court cases finding ‘patents unenforceable based on eight- and nine-year prosecution delays.’” *PMC*, 552 F. Supp. 3d at 684 (Court’s “CL 13” finding quoting *Hyatt*, 998 F.3d at 1367 and citing: *Woodbridge v. U.S.*, 263 U.S. 50, 53, (1923) (nine-and-a-half-year delay); *Webster Elec. Co. v. Splitdorf Elec. Co.*, 264 U.S. 463, 465, (1924) (eight-year delay); *Bogese*, 303 F.3d at 1369 (eight-year delay); *Symbol II*, 422 F.3d at 1385 (citing *Woodbridge* and *Webster*)).

36. In this case, Netlist waited more than 13 years to file the ’918 patent claims, and nearly 14 years to file the ’054 patent claims. *See* Findings of Fact ¶¶ 61-63.

37. If the claims of the ’918 and ’054 patents really are supported by the written description, Netlist could have (and should have) filed them long before it did. But instead,

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Netlist focused the claims of this patent family on hybrid memory for more than a decade in accordance with what it stated is its invention, and “simply stood by and awaited developments.” *Webster*, 264 U.S. at 465-66. Like in *Webster*, “[w]e are not here dealing, therefore, with the simple case of a division of a single application for several independent inventions, but with a case of unreasonable delay and neglect on the part of the applicant [ ] in bringing forward claims broader than those originally sought.” *Webster*, 264 U.S. at 465-466 (citations omitted).

38. Indeed, Netlist “sat down and waited until” the industry standard emerged, when there was “likely to be a strong demand for” standard-compliant products, “before seeking to avail [itself] of the patent, thus postponing the time when the public could freely enjoy it for” more than 13 years. *Woodbridge*, 263 U.S. at 56. This behavior aligns with Netlist’s admitted purpose of attending JEDEC meetings “to understand how the industry was moving, in which direction.” See Findings of Fact ¶ 74. Such conduct has been deemed sufficient to rise to the level of prosecution laches. See *Webster*, 264 U.S. at 465-466 (citations omitted); *Woodbridge*, 263 U.S. at 56.

39. Netlist manipulated the JEDEC and patent system in an attempt to secure claims that would read on the emerging DDR5 standard. After attending JEDEC meetings in 2018 and 2019 and gaining access to the emerging DDR5 standard, Netlist quietly amended its patent claims to read on these standards without disclosing them to JEDEC. See Findings of Fact ¶¶ 77-87. To the extent that Netlist argues that no such disclosure was required because its JEDEC representative Mr. Martinez did not have adequate knowledge of the ’918 and ’054 patents, such lack of knowledge could result from only Netlist’s deliberately keeping Mr. Martinez unapprised. Mr. Martinez was a Netlist employee, board member, and JEDEC representative during the present publicized litigation. See Findings of Fact ¶¶ 88-91. As Netlist’s JEDEC

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expert testified, it is more likely that such an individual in a small company would have knowledge of the company's patents, and a lack of such knowledge under these circumstances could be caused by only intentional siloing. *See* Findings of Fact ¶ 92. Such conduct constitutes an abuse of the patent system and together with the other facts discussed above satisfies the first element of prosecution laches of an unreasonable and inexcusable delay.

### 3. Netlist's Delay Prejudiced Samsung and the Public

40. “[P]rosecution laches’ requirement of an unreasonable and unexplained delay includes a finding of prejudice, as does any laches defense.” *PMC*, 552 F. Supp. 3d at 690 (Court’s “CL 36” finding quoting *Cancer Rsch.*, 625 F.3d at 729). “[T]o establish prejudice an accused infringer must show evidence of intervening rights, *i.e.*, that either the accused infringer or others invested in, worked on, or used the claimed technology during the period of delay.” *Id.*

41. Here, Samsung presented clear evidence that it developed intervening rights, and therefore was prejudiced during Netlist’s period of delay. Netlist’s 13+ year delay of filing non-hybrid memory claims prejudiced Samsung and other JEDEC members, who had already begun investing in the development of DDR5 memory products. *See* Findings of Fact ¶¶ 93-100; *Symbol Techs., Inc. v. Lemelson Med., Educ. & Rsch. Found., LP*, 429 F.3d 1051, 1052 (Fed. Cir. 2005) (“[P]rejudice to the public as a whole has been shown here in the long period of time during which parties, including the plaintiffs, have invested in the technology described in the delayed patents.”). By the time the ’918 patent issued, Samsung’s DDR5 products “had matured into the version accused of infringement.” *PMC*, 552 F.Supp. 3d at 690. *See* Findings of Fact ¶¶ 93, 98-100. “This prejudice is underscored by the fact that a duly empaneled jury found that” Samsung’s DDR5 technology “infringed at least one of [the claims].” *PMC*, 552 F. Supp. 3d at 690. The prejudice to Samsung and other JEDEC members is also exacerbated by Netlist’s

failure to inform JEDEC members like Samsung that it believed the '918 and '054 patents to be standard essential, as JEDEC's policy requires. *See* Findings of Fact ¶¶ 88-92.

42. Netlist's unreasonable and inexcusable delay coupled with the prejudice to the public and to Samsung renders the '918 and '054 patents unenforceable due to prosecution laches.

## **D. Unclean Hands**

### **1. Legal Standard**

43. Unclean hands applies when the misconduct of "one coming for relief has immediate and necessary relation to the equity that he seeks in respect of the matter in litigation." *Keystone Driller Co. v. Gen. Excavator Co.*, 290 U.S. 240, 245 (1933). It "necessarily gives wide range to the equity court's use of discretion in refusing to aid the unclean litigant." *Precision Instrument Mfg. Co. v. Auto. Maint. Mach. Co.*, 324 U.S. 806, 815 (1945). "Any one of these acts—lying, unethical business conduct, or litigation misconduct—would be sufficient to invoke the doctrine of unclean hands." *Gilead Scis., Inc. v. Merck & Co, Inc.*, No. 13-cv-04057, 2016 WL 3143943, at \*27 (N.D. Cal. June 6, 2016), *aff'd*, 888 F.3d 1231 (Fed. Cir. 2018).

### **2. Netlist's Late Change in Position Is Litigation Misconduct**

44. Netlist repeatedly took the position throughout the litigation that the '339, '918, and '054 patents were essential to practicing the JEDEC standards, only to take the contrary position at the pre-trial proceedings and at the jury trial. *See* Findings of Fact ¶¶ 101-117. This change in position late in the case before the Court, in light of earlier representations that were substantially, if not diametrically different, is sufficient for finding litigation misconduct. *See Gilead*, 888 F.3d at 1246 (recognizing "changing and evasive explanations for why he narrowed the claims" as misconduct supporting unclean hands); *Luv n' care v. Laurain*, 606 F. Supp. 3d

337, 423 (W.D. La. 2022) (finding unclean hands due, in part, to “evasive, false and misleading testimony and misrepresentations”); *Intamin, Ltd. v. Magnetar Techs. Corp.*, 623 F. Supp. 2d 1055, 1077 (C.D. Cal. 2009) (finding unclean hands where “Intamin’s misrepresentation of its ownership interest in the patent was a critical element of Intamin’s misconduct in its dealings with potential defendants”).

45. Netlist’s gamesmanship in withholding information regarding its ultimate trial position on patent essentiality to obtain an advantage in the litigation constitutes bad faith. *See Micron Tech., Inc. v. Rambus Inc.*, 645 F.3d 1311, 1327 (Fed. Cir. 2011) (“Litigations are fought and won with information. If the district court finds facts to conclude that Rambus’s goal in implementing its document retention policy was to obtain an advantage in litigation through the control of information and evidence, it would be justified in making a finding of bad faith.”).

46. Netlist’s counsel criticized Samsung’s expert Mr. McAlexander for not analyzing whether undisputed claim elements are essential to the standard in his reports when, at that time, Netlist was contending the ’339, ’918, and ’054 patents were essential magnifies Netlist’s litigation misconduct by using its own change in position to undermine Mr. McAlexander’s opinions. *See Findings of Fact* ¶¶ 142-147.

**3. Netlist’s Change in Position Had an Immediate and Necessary Effect on the Issue of Infringement and Damages**

47. Netlist’s misrepresentations had an immediate and necessary effect on Netlist’s claim of patent infringement and damages because Netlist’s change in position prevented Samsung from presenting its complete defenses to infringement and damages, which it structured based on Netlist’s original representations that the ’918, ’054, and ’339 patents were essential. *See Gilead*, 888 F.3d at 1240 (“[T]he ‘immediate and necessary relation’ standard . . . generally

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must be met if the conduct normally would enhance the claimant's position regarding legal rights that are important to the litigation if the impropriety is not discovered and corrected."").

48. Netlist gained a significant advantage in proving its claim of patent infringement and damages and severely prejudiced Samsung because Netlist's change in position prevented Samsung from presenting relevant expert testimony and evidence concerning JEDEC, standards compliance, development of DDR4 and DDR5 products and the technical contributions to the same, apportionment of the accused DDR4 and DDR5 products, and Netlist's RAND obligations for the '918, '054, and '339 patents. *See Findings of Fact ¶¶ 118-141.*

49. Specifically, Netlist gained an advantage in proving its claim of patent infringement by preventing Mr. McAlexander from testifying how the accused products do not infringe based on the technical operations defined in the JEDEC standards, on which Mr. McAlexander relied for his opinions because that is what Dr. Mangione-Smith used. *See Findings of Fact ¶ 126.*

50. Netlist also gained an advantage in proving its claim of patent infringement and damages by preventing Mr. Halbert and Mr. McAlexander from testifying how Samsung contributed to the very standards on which Netlist relied to show infringement, especially because Netlist did not contribute to those standards and was asked to leave JEDEC due to its unwillingness to license its patents on RAND terms. *See Findings of Fact ¶¶ 125, 128.*

51. Netlist also gained an advantage in proving its claim of patent infringement and damages due to Samsung's witnesses' reliance on Netlist's original position that the patents were essential. Samsung's experts developed their expert reports and opinions based on Netlist's repeated contention that the '918, '054, and '339 patents were essential. *See Findings of Fact ¶¶ 144-146; 05/30/2023 Bench Trial Tr. at 111:7-19 (McAlexander), 114:20-115:9 (Meyer).*

52. Netlist also gained a significant advantage in proving its claim of patent infringement and damages and severely prejudiced Samsung because Netlist's change in position prevented Samsung from presenting relevant fact witness testimony regarding the accused products' practicing the standard to rebut Netlist's argument that Samsung needed Netlist's technology. *See* Findings of Fact ¶ 130.

53. Samsung's inability to present relevant testimony and evidence at trial regarding JEDEC, standards compliance, development of DDR4 and DDR5 products, and Samsung's significant technical contributions to the same is a direct result of Netlist's misrepresentations to the Court and enhanced Netlist's position by precluding Samsung from presenting such opinions and evidence to rebut Netlist's counsel's statements that Samsung was "desperate" to use Netlist's technology, 04/21/2023 Trial Tr. at 1377:14-19 (Sheasby), and "wanted to access our patents," *id.* at 1327:17-23 (Sheasby).

54. Netlist's also gained a significant advantage in proving its claim of patent damages and severely prejudiced Samsung because Netlist's change in position prevented Samsung's damages expert, Mr. Meyer, from presenting relevant testimony and evidence regarding Netlist's RAND licensing obligations for the '918, '054, and '339 patents.

55. Unable to testify about RAND licensing obligations, Mr. Meyer was further prohibited from presenting relevant testimony and evidence to the jury to rebut the propriety of Mr. Kennedy's damages demand at trial. Specifically, Mr. Meyer was unable to demonstrate that Mr. Kennedy's DDR4 per unit rate of \$72 and DDR5 per unit rate of \$21 were 65 times and 19 times respectively the \$1.10 effective per unit rate that Netlist agreed to with SK hynix, and thus could not be considered a reasonable and non-discriminatory rate consistent with Netlist's



RAND commitments. *See* Findings of Fact ¶¶ 131-141; 05/30/2023 Bench Trial Tr. at 117:16-23 (Meyer).

56. Compounding the prejudice to Samsung, Mr. Meyer was prohibited from presenting additional corroborative evidence of Netlist's failure to abide by its RAND obligations by introducing the Sidak study, adopted by Netlist, which opines that a FRAND rate for DDR4 LRDIMM patents would be any amount from zero dollars to \$34.27. *See* Findings of Fact ¶¶ 138-139. Mr. Kennedy's DDR4 LRDIMM rate at trial for one patent was over double this amount. 05/30/2023 Bench Trial Tr. at 119:4-16 (Meyer).

57. The significant prejudice ultimately suffered by Samsung from Netlist's misconduct is further evidenced by the jury's damages award, as Mr. Meyer concluded that the jury-awarded rates for DDR4 and DDR5 were 75% of Mr. Kennedy's trial rates, and 50 times and 14 times higher, respectively, than the \$1.10 per unit rate Netlist agreed to in its license agreement with SK hynix. *See* Findings of Fact ¶ 141.

58. Samsung's inability to present relevant expert opinions and evidence at trial regarding apportionment of the DDR4 and DDR5 products is a direct result of Netlist's misrepresentations to the Court and enhanced Netlist's position because Samsung was unable to present a complete rebuttal to Netlist's damages allegations.

59. Samsung's inability to present relevant expert opinions and evidence at trial regarding Netlist's RAND obligations for the '918, '054, and '339 patents is a direct result of Netlist's misrepresentations to the Court and enhanced Netlist's position because Samsung was unable to present a complete rebuttal to Netlist's damages allegations.

60. The doctrine of unclean hands “necessarily gives wide range to the equity court’s use of discretion in refusing to aid the unclean litigant.” *Precision Instrument Mfg. Co. v. Auto. Maint. Mach. Co.*, 324 U.S. 806, 815 (1945).

61. Based upon the findings of fact and applicable legal standards set forth above, Netlist’s misconduct relating to its claims of infringement of the ’918, ’054, and ’339 patents requires dismissal of those claims under the doctrine of unclean hands.

**4. Netlist’s Misconduct Sets an Untenable Precedent for Trying Standard Essential Patent Cases**

62. Netlist’s misconduct sets a dangerous precedent for future standard essential patent cases before this Court. Netlist’s strategy was to represent that its patents were standard essential for only the times it benefitted from that representation. For example, Netlist used the representation that its patents were standards essential to rely on the standards for meeting the Federal Rule of Civil Procedure 8 pleading standard for patent infringement cases. *See Findings of Fact* ¶¶ 101-103; 05/30/2023 Bench Trial Tr. at 48:19-50:6 (Milton). Netlist also used the representation during discovery to ease its burden of showing infringement. *See Findings of Fact* ¶¶ 104, 112; 05/30/2023 Bench Trial Tr. at 43:8-44:9, 74:7-18 (McAlexander), 93:7-15 (McAlexander). Then, at the opportune moment before trial and after Samsung’s experts had relied on Netlist’s representations to develop their opinions, 05/30/2023 Bench Trial Tr. at 43:8-44:9, 111:7-19 (McAlexander), 115:1-9 (Meyer), Netlist backtracked on its representation when it became favorable to do so. For example, Netlist used its late change in position to avoid its RAND licensing obligations, which would have necessitated a much smaller damages demand. *See Findings of Fact* ¶¶ 115-116, 118. Netlist also used its change in position to successfully exclude Samsung’s evidence regarding standard compliance, which was part of Samsung’s defense against willfulness. *See Findings of Fact* ¶¶ 115-116, 119-122.

63. If the Court endorses this strategy, Netlist's actions provide a roadmap for future litigants to enforce patents the patentee considers to be essential without confronting the burdens and commitments that attach to essential patents. Permitting Netlist to proceed with its litigation misconduct concerning the essentiality of its patents without consequence would improperly encourage, rather than deter, patentees to change positions regarding essentiality in order to gain an unfair advantage at trial and/or shed the burdens and obligations that come with such patents.

#### IV. CONCLUSION

For the reasons set forth above, the Court finds that the doctrines of standards estoppel, prosecution laches, and unclean hands render the '918 and '054 patents unenforceable, and the doctrine of unclean hands further renders the '339 patent unenforceable, thus barring Netlist's recovery of damages for any claim of infringement in this action relating to the '918, '054, and '339 patents.

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[REDACTED]

**CERTIFICATE OF SERVICE**

I hereby certify that a true and correct copy of the foregoing document was filed electronically in compliance with Local Rule CV-5 on June 13, 2023. As of this date, all counsel of record have consented to electronic service and are being served with a copy of this document through the Court's CM/ECF system under Local Rule CV-5(a)(3)(A) [REDACTED]

/s/ Francis J. Albert

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